1913.

QUEENSLAND.

TROPICAL DISEASES BUREAU
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OF

THE COMMISSIONER OF PUBLIC HEALTH

TO

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ANNUAL REPORT.

TO THE UNDER SECRETARY, HOME DEPARTMENT.

Brisbane, 21st August, 1913.

SIR,—I have the honour to submit the following report upon the work of the department under my control for the year ending 30th June, together with certain comments and detail relating to the public health of Queensland.

I.—GEOGRAPHICAL RELATIONSHIPS OF QUEENSLAND AND THEIR RESULTS.

The geographical relationships of Queensland with the infected littoral of Far Eastern Asia and its dependencies have been emphasised in previous reports, together with the absolute necessity for constant maintenance of an effective system of internal sanitary defence. We have eleven considerable coastal ports distributed along 1,500 miles of coast line, and over 600,000 persons of European blood residing in a tropical or subtropical climate. The four principal coastal ports are linked by railway for hundreds of miles to large areas in the interior. Further railway developments will, before many years, join the northern coastal centres to those in the south, and hence to the general railway systems of Australia. The time of transit between Asia and its dependencies and the principal centres of population in Queensland and other States will be thereby greatly reduced.

Thursday Island, the main gateway for sea traffic by the Northern routes, lies some 1,500 miles north of Brisbane. It is less than 600 miles from the Aru Islands, which are infected with endemic smallpox, 900 miles from the Spice Islands, 1,500 miles from Celebes, 1,800 miles from Borneo, 1,000 miles from Timor, and 2,100 miles from Java. All have endemic smallpox, most have endemic cholera, and some have endemic plague amongst their teeming native populations. The vast island of New Guinea, on the opposite side of Torres Strait, has endemic malignant malaria and tropical dysentery, and there is good reason to suspect that smallpox is frequently or endemically present in parts of the Dutch and German territories.

The extended incubation period of smallpox (twelve days to the initial fever, or fifteen days to the appearance of the eruption), together with the existence of "carriers" of cholera and dysentery, taken together with the increasing speed of modern transit, render it impossible under these conditions to ensure absolute exclusion of infective persons from our shores. A smallpox-infected person from the Aru Islands could be landed in Brisbane from a twelve-knot steamer some days before the expiration of his incubation period, and hence before the most rigorous quarantine inspection could detect the fact of his approaching illness. A similarly infected person could land in Cairns or Townsville from the Spice Islands, Celebes, Borneo, Manila, Timor, or Java two or more days before his illness began. An illustration of the risk was afforded last year, when a saloon passenger on a vessel passing through at Thursday Island from Asian ports developed smallpox a day after leaving, although careful quarantine inspection had failed to detect any signs of illness. The infection had been contracted twelve days before in an Asian port, but until the actual invasive symptoms began it was not possible to detect it.

The establishment of the Northern office and staff at Townsville has undoubtedly mitigated the risk of being caught unprepared at a distance from a base of operations, but much still remains to be done before Queensland is in a position to face with equanimity the invasion of exotic epidemic disease. The task of securing the removal of the conditions which invite and assist the entrance of such diseases is an uphill one. With smallpox knocking at our very doors, the same weary old arguments against vaccination that Jenner combated over a hundred years ago, clothed even in the same words, and backed by the same appeals to the same old wives' remedies, appear in the Press of to-day. There yet are many citizens who regard any risk from yellow fever as a figment of a diseased sanitary imagination, and who record hearty protests against measures for the reduction of the *Stegomyia fasciata* mosquito on their premises. Rats appear to be looked upon by a considerable section of the community as pets rather than potentially dangerous plague-carriers, despite the startling plague outbreaks of a few years ago.

The water supplies of several of our larger cities and of many towns are practically unprotected against the risks of cholera and dysentery. Few of the larger centres of population are yet provided adequately with isolation accommodation for infectious diseases, and much requires to be done in respect of local sanitary organisation. Drainage schemes are also needed in many places where the capacity of pan services has been outgrown.

Queensland is to-day one of the healthiest countries in the world, and it is well worth while to invest deliberately a considerable annual amount of State and municipal funds to keep her so. The State outlay has been forthcoming, but, except where direct compulsive powers are provided or employed, there is a widespread municipal tendency to economise on preventive activities. This policy is unwise. The effect of epidemic disease on trade and commerce was pointed out in the course of an address to the Conference of Local Authorities held at Brisbane last year:—

> If disease spreads widely in a community, commerce and trade are liable to be interfered with to a very serious extent. It will be recollected how dengue fever crippled the entire commercial life of Brisbane a few years ago. If, instead of dengue fever, it had been cholera, or yellow fever, in which half of the thousands upon thousands of people who fell ill would have died, the commercial progress of the city would have been set back for years. To a lesser but still serious extent, the same effect is seen in a town where there is an outbreak of typhoid fever. Workers fall ill, others are scared away, the town gets a bad name for being unhealthy, capitalists hesitate to invest, the labour supply falls off, and development suffers.
>
> Certain important industries may be badly injured, or perhaps ruined, by disease outbreaks. What would happen, for example, if smallpox or a severe form of dysentery or malaria broke out in the height of the cane-cutting season in our sugar districts, and was not promptly checked? These things have happened elsewhere, and Queensland possesses no magic charm against them. The risk increases every year. The only safeguard is to be found in intelligent business-like application of the powers which Parliament has provided for the purpose of preventing and checking just such disasters as these. It is a plain enough business proposition. There is no reason for regarding preventable disease with any sentiment, or in any other way than as a thing to be avoided, if possible, and to be well insured against. The insurance for any community is provided by the amount of rates and taxes and public effort devoted to health protection, and the efficiency and economy with which this protection is applied. In health work, as in every other business proposition, if advantages are to be secured they must be paid for.

II.—STATISTICAL.

The estimated mean population of Queensland at the end of 1912 was 631,577, an increase of 17,225 over that for 1911.

Exclusive of full-blooded aboriginals, the census population on 3rd April, 1911, was 605,813. The total number of aboriginals in the State is estimated by the Chief Protector of Aboriginals at from 15,000 to 20,000.

The area of Queensland is approximately 670,500 square miles. This is rather more than the combined areas of Germany, France, and Spain, and more than five times the area of the United Kingdom.

The crude birth rate (births per 1,000 of mean population) for 1912 was 29.70, which is higher than that for any previous year since 1902, and higher than that for the Commonwealth for 1912 (28.65).

The crude death rate (deaths per 1,000 of mean population) was 10.96, showing a slight rise from the previous eight years. Crude death rates depend so largely, however, upon age-distribution of population and other factors that this rise is not to be taken as indicating any increased prevalence of disease or any relative inferiority of conditions conducive to health. The Queensland crude death rate was below that for the Commonwealth (11.23) for 1912.

The marriage rate for 1912 was 8.91. This is higher than that of any previous year in the decade.

The following table, supplied by the Government Statistician, summarises the principal vital statistics of Queensland for the last decade:—

SUMMARY OF PRINCIPAL VITAL STATISTICS OF QUEENSLAND FOR DECADE 1903-1912.

(Furnished by Government Statistician.)

—	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.
1. Estimated Mean Population ..	512,690	519,178	525,728	532,783	541,204	555,171	571,044	592,201	614,352	631,577
2. Number of Births	12,621	14,082	13,626	14,019	14,542	14,828	15,554	16,173	16,991	18,758
Rate per 1,000 Mean Population ...	24·62	27·12	25·92	26·31	26·87	26·71	27·24	27·31	27·66	29·70
3. Deaths under 1 Year	1,513	1,072	1,029	1,047	1,122	1,043	1,119	1,020	1,112	1,340
Rate per 1,000 Born	119·9	76·1	75·5	74·7	77·2	70·3	71·9	63·1	65·44	71·44
4. Deaths all Ages	6,346	5,250	5,503	5,095	5,599	5,680	5,530	5,145	6,514	6,921
Rate per 1,000 Mean Population...	12·38	10·11	10·47	9·56	10·35	10·23	9·68	9·70	10·65	10·96
5. Deaths in Public Institutions ...	1,761	1,452	1,661	1,565	1,744	1,796	1,705	1,865	...	...
6. Number of Marriages	2,933	3,078	3,173	3,588	4,105	4,009	4,512	4,769	5,169	5,628
Rate per 1,000 of Mean Population	5·72	5·93	6·04	6·73	7·58	7·22	7·95	8·05	8·41	8·91

The infantile mortality rate for 1912 (deaths under 1 year per 1,000 born) was 71.44. The infantile death rate in the metropolitan districts for the same year was 81.73, and for other districts 68.25 per 1,000 born. This increase of the rate in metropolitan districts holds true for all the States. "The causes of 'preventable' deaths may generally be attributed to milk poisoning, want of knowledge on the part of mothers, inability to nurse, and lack of the necessary medical facilities." ("Commonwealth Year Book," No. 6).

The position of Queensland as one of the healthiest countries in the world for young children was referred to in last year's report. Queensland has been so frequently and so unfairly misrepresented in this respect by ill-informed medical and other critics in Southern States that it is time that our true position is insisted upon. If young children could be sent away from the fogs and damp of the Southern winters to our clear and sunlit skies, the mortality and morbidity of young Australia would be very materially reduced. Even the continued heats of our summers are evidently less injurious to children than are the alternations between extreme heat and "cool changes" direct from the Antarctic Ocean, which constitute the so-called milder climates of the higher Australian latitudes.

The low relative rates of infantile mortality occurring in Queensland as compared with other countries is shown by the following table, supplied by the Government Statistician:—

RATES OF INFANTILE MORTALITY IN VARIOUS COUNTRIES.

Country.	Year.	Infant Mortality Rate.
Queensland	1912	71·4
Commonwealth of Australia	1912	71·8
Norway	1909	72
Ireland	1910	95
England and Wales	1910	105
Scotland	1909	108
France	1909	120
German Empire	1909	170
Austria	1908	205
Chile	1910	313

III.—COMMUNICABLE DISEASES.

The total cases notified for each proclaimed disease during the year under review are shown in Appendices M and N.

TYPHOID FEVER.

The prevalence of this disease in anything like epidemic form was limited during the year under review to a few districts, principally in the Western areas. Outbreaks occurred at Cloncurry in January and April which resulted in considerable loss of life, and received active attention from the Northern sub-office. Amongst those who lost their lives was Dr. Zeitz, Medical Officer of Health for the Cloncurry area.

Another outbreak occurred in May, 1913, in the Winton area, and it is probable that if this had not been resolutely and promptly dealt with by the Northern staff under Dr. Booth Clarkson's direction, co-operating with the Winton Shire Council, the results would have been much more serious than they were. The most severe incidence was at Kynuna Station, where the disease had apparently been introduced by a new arrival from Melbourne. Fly infection of food supplies from the contaminated cesspool-closets had apparently served as the principal line of spread.

Before the outbreak was got under, 77 cases occurred in the Winton area, with 12 deaths. The necessary material for anti-typhoid inoculation, prepared at the Department's Laboratory of Microbiology, was despatched to Winton, and a large number of people submitted themselves for protection by this agency. The great distances separating the principal infected points made it difficult to carry out the full treatment of three injections at intervals of seven days, but it was found possible to inoculate 420 persons once, 271 twice, and 180 three times. Dr. Booth Clarkson, Medical Inspector for North Queensland, expresses the opinion that the outbreak "could not have been stamped out, especially considering the surrounding conditions, in so short a time but for anti-typhoid inoculation."

A scheme designed to place anti-typhoid inoculation within reach of all persons in the main centres of the infected areas about Cloncurry, Selwyn, and other noted haunts of typhoid fever, has been under active consideration since last year. The remarkable results obtained from the immunisation of more than 60,000 men in the United States Army, together with other similar undertakings in several parts of the world, point to this method of protection as affording the best and most easily applicable safeguard against typhoid fever which has yet come within the grasp of the practical sanitarian. It has for long been recognised by practical workers against disease that the old scavenging policy is of very little avail in controlling an outbreak of typhoid fever. The paths of infection are elusive and difficult to follow, for typhoid fever is spread by infected human excrement, and human excrement is, unfortunately, an ordinary, if unrecognised, ingredient of the daily dietary of thousands of people.

The statement may appear startling, but it is none the less true. Fingers, food, and flies are the principal connecting links by which infected body filth is enabled to gain access to the human body. Even polluted water, although it may cause and has caused extensive outbreaks elsewhere, is of less importance under Queensland conditions than are defects of personal and domestic cleanliness. The relative incidence of typhoid fever in an unprotected community may be taken as an index of the frequency with which infected human excretal matter is swallowed by the members of that community. Drains have little or nothing to do with typhoid, save as possible collecting places for infective discharges, liquid or solid, which may subsequently gain access to water or food by leakage, fly-transference, or fouling of fingers or utensils.

The problem of typhoid prevention has now been reduced to the same simplicity as has that of smallpox prevention. If people are efficiently vaccinated against typhoid fever their chance of getting it during the next few years at least is very small, and the risk of death from typhoid practically negligible. Efficient vaccination has a technical meaning in each case, implying that it has not been performed during the later incubation period of an existing infection and that the technique of preparation and operation has been fully carried out.

It is proposed to prepare anti-typhoid vaccine on a considerable scale at the Department's Laboratory of Microbiology, and to make it available in typhoid-infected areas during the approaching summer, both through local medical practitioners and, if necessary, by means of a special medical officer. The reaction produced by the inoculation is slight, and does not, except in rare cases, affect the working capacity of the inoculated person.

DIPHTHERIA.

The incidence of diphtheria has remained higher than usual during the year under review. Children have, as usual, provided the great bulk of cases, and the effect of school-spread has been again evident.

An extensive and widespread outbreak at Mackay and in the Pioneer Shire necessitated action by the department, local effort having failed to check the spread of the disease, which was assuming alarming proportions and threatening other parts of Queensland. Dr. Booth Clarkson, Medical Inspector for North Queensland, proceeded to Mackay on 2nd September, and found the conditions to be serious, over 120 cases having been notified during the current year. At the request of the mayor of Mackay and of the Medical Officers of Health for Mackay and the Pioneer Shire, Dr. Booth Clarkson came on to Brisbane to consult with the headquarters staff concerning the measures required.

A tent hospital outfit was got together, suitable regulations were drafted for application to the infected areas, and arrangements were made for large scale investigations to detect carrier cases. Dr. Booth Clarkson began work with a special staff at Mackay on 15th September, and by 10th December it was possible to hand over charge of operations to the local authorities concerned. During this time an Isolation Hospital was established, staffed, and equipped at the Department's Isolation Hospital premises, a district nursing staff was organised for the collection of throat swabs and general supervision of cases and contacts, ninety cases were treated at the Isolation Hospital, and 4,856 throat swabs examined at the Department's Laboratory of Microbiology. The unexpectedly large number of carriers found by this means increased very greatly the difficulties of conducting the campaign. Between 15th September and 30th June the total number of carriers treated was 1,085; 124 cases of acute diphtheria were treated at the Isolation Hospital during the same period; 25 suspects and 85 carriers were also isolated at this establishment. Only three deaths occurred. The type of disease was fairly severe, but the prompt use of anti-diphtheritic serum and the early stage at which most cases were brought under medical attention enabled fatal results to be averted in many cases which would have otherwise had a less satisfactory course. The outbreak appears to have now been thoroughly brought under control, no case of true diphtheria having been treated in the municipality since 8th April, and only sporadic cases in the shire.

A smart outbreak occurred at Clermont at the end of 1912, and over 100 cases were notified within three weeks. The local authority acted with such promptitude and efficiency, however, that after the first outburst of developing cases was over, very few secondary ones occurred. An inspector of the department was sent from Mackay to assist with the work, but it was found that the local methods were completely effective. The last case was notified on 24th April, 1913.

PHTHISIS.

During 1911, the latest year for which comparative figures are available, the death rate from tuberculosis in Queensland (·67 per 1,000 of mean population) and the percentage of deaths from tuberculosis calculated on total deaths (6·26) were again considerably lower than those of any other State. The following table extracted from the "Official Year Book of the Commonwealth of Australia," No. 6, gives the position in this respect for the various States in 1911:—

State.	* Death Rates from Tuberculosis.			Percentage on Total Deaths		
	Males	Females.	Total.	Males.	Females	Total.
New South Wales ...	0·85	0·67	0·76	7·37	7·37	7 37
Victoria	1·01	0·97	0·99	8·01	9·36	8·62
Queensland	0·74	0·58	0·67	6·13	6·48	6·26
South Australia ...	0·81	0·91	0·86	7 75	9·95	8·77
Western Australia ..	0·84	0·71	0·78	7·18	8·70	7·70
Tasmania	0·90	0·82	0·86	8·39	8·54	8·46
	0·88	0·78	0·83	7·45	8·29	7·80

* Number of deaths from tuberculosis per 1,000 of mean population.

Despite this satisfactory position of Queensland at the present day, an unnecessary and preventable expenditure of 326 lives per annum, as occurred during 1912, cannot be regarded with indifference. Each fatal case of consumption involves an outlay of at least £30 in medical attendance, nursing, hospital expenses, support whilst unable to work, funeral expenses, &c. The annual consumption bill for Queensland during 1912 was thus over £10,000, apart from the value of lives lost. Two-thirds at least of the deaths from phthisis are amongst people between 15 and 50 years of age, or, in other words, they occur at the most useful and productive ages. Between these ages, also, any long-continued disabling illness produces the maximum of poverty and misery by disabling breadwinners. This feature, together with the capacity for disabling its victim for several months before death, renders phthisis a particularly expensive and undesirable factor in the social economy.

The vast majority of deaths from phthisis occur amongst our own people. It is not unusual to hear the view expressed that our death rates are increased by deaths of consumptives sent out for their health to Australia from other countries. That this is incorrect is apparent from the fact that during 1911, out of 3,736 deaths from tubercular diseases in Australia, 2,730 were persons born in the Commonwealth, and only 129 were returned as resident in the Commonwealth for four years or less ("Official Year Book," No. 6). The great bulk of our consumption death rate is the result of local infection and falls on our own folk.

The first and most evident preventive measure against consumption is the provision of adequate accommodation for housing and looking after the advanced cases who now serve as distributing centres for the disease. Probably 90 per cent. of all cases of tuberculosis have been contracted more or less directly from an infected person by inhalation or ingestion of the infected sputum. The best and most economic method of providing this accommodation is by means of hospital annexes at convenient centres for advanced cases, and adequate and well-distributed sanatoria for cases in the curable stages. The structural requirements for such accommodation are simple, and the cost of operation and maintenance relatively low. The distribution should be such as to preclude the necessity for long and expensive journeys. All necessary statutory powers for the organisation of a scheme for dealing effectively with pulmonary tuberculosis are available in the Health Acts, but it is impossible to apply them intelligently and effectively until adequate and suitable accommodation is provided for advanced cases in the main centres of population. The question of treatment must be deferred until this accommodation has been satisfactorily dealt with. No specific remedy for phthisis exists, and active steps are being taken to deal with certain nostrums designed for the financial exploitation of consumptive sufferers. As yet, the only hopeful prospect of remedial treatment on a large scale is to be found in the "tuberculin dispensaries" organised in London by Dr. Camac Wilkinson, formerly of Sydney. Satisfactory results have been recorded by a number of observers, and it appears probable that tuberculin, employed in the manner advocated by Dr. Wilkinson, will eventually be found to serve a useful purpose in dealing with the consumption problem on a national scale.

Ankylostomiasis.

Seventeen cases of this disease have been notified during the year under review. Of these two only were from the metropolitan area.

The true condition of affairs, so far as prevalence of ankylostomiasis is concerned, is undoubtedly underestimated by this return. The disease does not appear, so far, to have wrought any serious or permanent racial damage in Queensland, and observation fails to show any evidence of the widespread physical and moral deterioration described by Stiles, Dock, and other American observers as resulting from it in certain of the Southern United States. Attention is being paid to it in most of our Northern centres, and the improvements which have occurred during late years in respect of efficiency and cleanliness of sanitary services should exercise a material check upon its prevalence in the future.

IV.—VENEREAL DISEASES.

Arrangements were completed at the beginning of April, 1913, for the inauguration of a scheme for dealing with venereal diseases in the metropolitan area of Brisbane. Its salient features may be thus summarised:—

1. Compulsory notification of cases by medical practitioners to the Commissioner of Public Health;
2. Prohibition of treatment of prescribed venereal diseases by unqualified persons;
3. Provision of free treatment, irrespective of condition or sex;
4. The distribution of printed leaflets of advice to sufferers, and for general information, through suitable channels, warning also being given concerning the consequences of infecting others;
5. Compulsory examination, and segregation where necessary, of persons of either sex known or suspected to be suffering from venereal disease, and to be liable to convey it to others.

The necessary legal power for establishing the organisation is provided by sections 132A and 132B of "*The Health Acts,* 1900 *to* 1911" and regulations thereunder. In addition, the following action has been taken with the authority of the Home Secretary:—

6. Free distribution of salvarsan and neosalvarsan to all hospitals, conditionally upon a report being furnished concerning each case in respect of which drugs so supplied are employed. One hundred and three doses were thus distributed to twenty hospitals during May and June.
7. Powers have been provided by regulation to enable all prisoners in gaols to be examined at the discretion of the visiting surgeon. If found to be in an infectious condition as a result of venereal disease, employment of other powers under the Health Acts enables such persons to be detained, irrespective of length of sentence, until no longer infectious.
8. Laboratory facilities for placing the Wassermann test at the disposal of medical practitioners have been provided at the Department's Laboratory of Microbiology.

The various regulations, notices, and forms employed in connection with the undertaking will be found in Appendix O. The report of Dr. G. P. Dixon, Medical Officer for Enthetic Diseases, appears in Appendix D.

Sections 132C to 132E of the Health Acts contain additional and consequential powers for the punishment of persons who knowingly infect others with venereal diseases, for the apprehension, examination, and detention of prostitutes and souteneurs, for the segregation of infected persons of either sex, and for enabling young female offenders to be dealt with by release under supervision. These are in operation for the whole of Queensland.

In connection with the Brisbane scheme, a free dispensary for enthetic diseases, under the control of the Department, has been established at the Brisbane General Hospital, with the co-operation and assistance of the committee of that institution. Special wards, providing for nine male and six female in-patients, have been sanctioned, and their erection will, it is anticipated, be commenced shortly. The dispensary staff comprises a medical officer (Dr. G. P. Dixon) and an assistant staff nurse of this Department detailed for special duty in connection with the scheme.

The Brisbane scheme represents an entirely new departure in respect of dealings with venereal diseases. In place of being draped in mystery, and limited to one section of one sex, operations are directed frankly towards the detection, control, and suppression of venereal diseases on similar lines to those which have proved effective with other communicable diseases. As Dr. George Pernet has pointed out, "It is well to understand that syphilis is no more sinful than measles, typhoid fever, or smallpox, and to remember that it is of vital importance to the community that syphilis should be treated quickly and adequately." That venereal diseases are probably widely spread in modern communities may reasonably be inferred from the remarkable amount of public attention which has been directed to the discovery of Salvarsan (606) and its allies. Prior to the organisation of the present scheme, however, no method of even approximate precision was available for ascertaining their prevalence and relative severity. Any estimates made had to be based on the uncertain ground of hospital returns and individual medical experience, both of which are obviously open to the production of statistical fallacy when an entire community has to be dealt with. The importance of venereal disease as a factor in the social and national economy is admittedly great, but with the exception of some action taken by the New York State Board of Health on similar but less comprehensive lines, the present scheme represents the first deliberately organised attempt to deal with the problem by accurate and comprehensive methods based on deliberately drawn statutory powers.

During the three months in which the scheme has been in operation prior to the close of the period under review, 264 cases of venereal disease have been reported. Of these 223 were gonorrhœa, 25 primary syphilis, and 16 secondary syphilis; 225 of the persons notified were males and 39 were females. Of the total notified cases, 2 were between 3 and 4 years of age, 1 between

4 and 5, 2 between 5 and 10, 1 between 10 and 15, 36 between 15 and 20, 90 between 20 and 25, 68 between 25 and 30, 44 between 30 and 40, 14 between 40 and 50, 5 between 50 and 60, and 1 over 60. Thirty-eight of the infected persons described themselves as married, 221 as single, and 5 as widowers. One hundred and thirty-seven cases were notified from hospitals, and 127 by medical practitioners. The average duration of cases of primary syphilis when first seen was 7.4 weeks, of secondary syphilis 62.9 weeks, and of gonorrhœa 9 weeks. These figures, however, probably represent an overestimate, particularly in respect of gonorrhœa, as many cases are included which were already under medical attendance at the commencement of operations. Eleven persons, ten being females and one a male, were required by order to present themselves for examination, being suspected to be suffering from venereal disease in an infectious condition. The ascribed source of infection is inquired into in all cases. Of the cases treated at the dispensary who were willing or able to give an apparently accurate answer, only 1 syphilitic case ascribed infection to a prostitute, and 5 to others, whilst of 42 sufferers from gonorrhœa 17 ascribed the source of infection to prostitutes and 25 to others. The term "prostitute" is here taken to include all women who received payment, whether resident or not in a recognised "house." Seventeen cases of syphilis and 67 cases of gonorrhœa were treated at the Dispensary for Enthetic Diseases as out-patients, totalling 240 attendances. One hundred and nine examinations of material for purposes of diagnosis in connection with venereal diseases were made at the Department's Laboratory of Microbiology.

V.—FOOD INSPECTION AND FOOD ADULTERATION.

Organisation of the special Food Staff, for which provision was made on last year's Estimates, was begun in September, 1912. By 1st January, 1913, the staff had commenced operations. Prior to this the work of food protection had been carried out by the General Sanitary Inspecting Staff.

The initiation of new and comprehensive standards and requirements has necessitated contact with important commercial and manufacturing interests at a number of points, and the most satisfactory testimony which it is in my power to afford in support of the work of the Food Staff is provided by the fact that whilst a practical revolution of the working conditions of several food industries has been brought about in the course of a few months, no complaint of harshness, unfairness, or injustice has required investigation by the Department. On the other hand, expressions of satisfaction with the new methods and standards have been freely forthcoming from the business organisations most closely affected. The results obtained during the first six months of operation have, in fact, surpassed official expectation, and reference to the report of the Chief Food Inspector, appearing in Appendix G, will illustrate the energy and thoroughness with which the new force have performed their duties. It is necessary, however, to point out that in this respect they are but following the excellent example set by their predecessors of the General Sanitary Inspecting Staff, who, in addition to other work, found or made time and opportunity to pay much useful attention to questions of food purity.

In the performance of their duties the five inspectors of the Food Staff have during six months travelled over 15,000 miles, have secured 408 official and 390 unofficial samples of foodstuffs for analysis, have made 1,758 inspections and reinspections of premises concerned with the sale, storage, preparation, or manufacture of foodstuffs, and have served 581 notices requiring alterations of methods or structure. They have instituted 33 prosecutions against offenders, yielding £242 17s. 4d. in fines and costs, and have seized and destroyed 92 tons of unsound food materials. The two lastmentioned fields of activity are not, however, to be taken as standards for emulation in future years. Prosecutions for deliberate adulteration and compulsory dealings with unsound food materials are necessary features in the earlier stages, but as the organisation develops the opportunities for action of this kind will diminish.

The primary function of a food staff is not to destroy food or to prosecute those who make and sell it, but to secure steady improvement of conditions of manufacture, transit, and sale until the level is reached at which destruction or prosecution will be no longer required in the public interest.

The important question of uniformity of standards and labelling requirements in the various States has approached much nearer to finality during the year under review. The evidence taken in Queensland in September by the Royal Commission on Uniform Standards for Foods and Drugs was made available in January, 1913, together with the conclusions arrived at. Although this report proved disappointing in respect both of matter and treatment, the collected evidence contained in its appendices, expressing as it did the views of many representatives of important food industries, yielded valuable information. In June a second Interstate Conference on Uniform Standards for Foods and Drugs was convoked in Melbourne to consider, and if possible to remove, certain differences existing between the standards and requirements of different States, and to unify these with certain Commonwealth standards. Queensland was represented by the Commissioner of Public Health, the Government Analyst, and Mr. Stafford as commercial representative. A number of important amendments and additions to the standards established at the 1910 conference were made, and these will, no doubt, in due course be embodied in the Queensland Food and Drug Regulations.

The report of the Government Analyst appearing in Appendix E contains much interesting matter bearing upon the purity and otherwise of the food material investigated by the Department's staff. The total number of samples examined during the year was 1,231, an increase on the previous year of 632. Of 419 legal samples of milk examined, 60 were below the legal standard, 52 being adulterated with water, and 8 deficient in butter-fat. This deficiency may in most cases be ascribed to failure to strip cows, or surreptitious removal of cream. An interesting table in Mr. Henderson's report shows how the percentage of samples which failed to reach the legal standard has fallen from 56 per cent. in 1907-1908 to 14 per cent. in 1912-1913. The average proportion of added water has, however, risen during the same period from 7·9 per cent. in 1910-1911 to 14 per cent. in 1912-1913.

The financial aspect of milk adulteration is again emphasised in this report, and the fact pointed out that if adulteration is generally practised in the metropolitan area in the same proportion as it is found to exist in samples taken generally, the public of Brisbane is paying over £2,800 a year for 34,000 gallons of water masquerading as milk. This is less, however, by £2,400 than a similar estimate for last year.

The average composition of the 359 samples of milk which attained or surpassed the minimum legal standard was: Total solids, 12·7 per cent.; fat, 4·0 per cent.; and solids non-fat, 8·7 per cent. The legal minimum of 3·3 per cent. of fat thus appears to be readily attainable by honest methods, and even if an abnormally low fat yield should occur, it can be readily differentiated from the result of adulteration with added water by means of the freezing test.

Forty-three prosecutions were undertaken during the year for adulteration or deficiency in respect of milk, 7 for refusal to sell, and 7 for breaches of the Food and Drug Regulations in connection with the handling of milk, these being principally on account of the use of rags for plugging the lids of milk cans. Fifty-five were successful, 2 being disallowed for technical reasons. The total fines and costs imposed in connection with milk cases amounted to £477 1s. 8d.

VI.—SEA QUARANTINE.

Up to 23rd December, 1912, maritime quarantine continued to be administered under "*The Quarantine Act,* 1908," the Commissioner of Public Health acting as Federal Chief Quarantine Officer-General. On that date, pursuant to Ministerial instructions, the arrangement was terminated, and the administration of quarantine transferred wholly to the staff of the Federal Quarantine Bureau. The joint arrangement had worked smoothly during the four years during which it had been under this system of control, and the transfer was made solely on account of the extra duties and responsibilities laid on the departmental staff by the provisions of "*The Health Act Amendment Act of* 1911." The limitations of maritime quarantine as an effective safeguard against the entrance of epidemic disease have been elsewhere alluded to. It is always liable to be forced or evaded by incubating cases or "carriers," and the really effective lines of defence require to be provided by the organisation and powers available to deal with such diseases after they have obtained a footing ashore. The proximity of the infected Asian littoral and the increasing spread of modern transit render it impossible to expect that even the best of quarantine services can succeed in permanently preventing cholera, smallpox, or plague from entering our territory.

VII.—PLAGUE AND RAT DESTRUCTION.

No case of plague in man or rat has been recorded for the period under review. This is ascribable to the unremitting persistence with which, in the past, the work of reducing, excluding, and examining rats has been carried out in the main coastal centres. The continuance of a like state of affairs will depend mainly upon the accuracy and thoroughness with which this work is carried out in the future. Constant effort towards the deratisation of populated areas affords the only safeguard against plague, which is primarily a disease of the rat and of allied species of rodents. The pandemic spread of plague is a constant possibility, and no relaxation of measures for rat destruction and rat exclusion can be safely undertaken.

As was pointed out last year, systematic observation has made it clear that the rat-reduction problem is not capable of being solved by rat-destruction measures alone. Of 1,278 premises which were systematically examined in and about Brisbane last year, 366 showed recent traces of rats, 73 were open to rat access from sewers and drains, 546 had rat harbourage in or about them, 417 had impregnable fortresses for rats in the form of inaccessible shelters under floors and elsewhere, and 430 were offering food and refreshment to rats by means of unprotected edible refuse and uncovered garbage tins. The apathetic or careless occupier had for years past been breeding rats nearly as fast as the Department's officers could destroy them. The position was absurd, but it could not be remedied until the passage of the amending Act of 1911.

In May, 1912, an Order was made by the Governor in Council declaring rats to be noxious vermin and specifying measures to be taken for their reduction and destruction by occupiers and owners of property in the metropolitan area of Brisbane. This Order, together with certain explanatory remarks, has been reprinted in the form of a pamphlet for public information. This pamphlet is distributed in the course of the work as occasion requires.

The effect of the Order has been to alter entirely the old unsatisfactory state of affairs. It is now the duty of citizens to deal with the deratisation problem themselves on their own premises. If they fail in this duty, it is performed at their expense, and in any case the work has to be done in a thoroughly effective manner to the satisfaction of the Department's officers. The charges are estimated and collected on a business-like basis. The objects kept in view are those of building out rats, and keeping them out permanently, of destroying their haunts and breeding-places once and for all, of rendering food supplies as inaccessible as possible, and, in the process, of destroying the animals under conditions which will least favour the future welfare of any survivors. The altered conditions have given more time for inspection work, and although the actual number of rats examined is less, the look-out kept for evidences of epidemic disease amongst them is more effective than was possible under the former system.

A summary of the structural and other work done in the Brisbane area by the rat gang during the year under review, together with other details relating to the organisation and its results, appear in the report of the Chief Sanitary Inspector, Appendix G.

Data relating to rats at Townsville and outports appear in Appendix L.

VIII.—MOSQUITO REDUCTION.

The discovery of the transmission of malaria by certain species of mosquitoes made by Ross in 1897-9, followed by those of the heroic band of American observers in Cuba who unveiled the mystery of the transmission of yellow fever in a similar manner by another species, have placed this group of bloodsucking insects in its true light as a potent factor in the public health of every tropical and temperate country. The late Dr. Bancroft had, prior to this, identified the *Culex fatigans* or brown house mosquito as the conveying agent of the bloodworm disease, filariasis. American workers in Manila have shown that the *Culex fatigans* is also capable of conveying dengue fever.

Their true position as dangerous pests has attracted the attention of sanitarians to mosquitoes the world over, and their destruction on a large scale has been successfully undertaken in many places, with consequent benefit to health. The practical outcome of the discoveries alluded to above is to be found in such startling facts as the clearance of Havana from yellow fever in 1900, after more than 300 years of ever-recurring fatalities, by means of ninety days' work on the new lines, and its subsequent freedom ever since from epidemic yellow fever. The Panama Canal affords a classic instance of the results of war waged against the mosquito. Sir Ronald Ross describes this great work as having been "dug with a microscope." The American authorities have spent some £73,000 a year on applied sanitation, and the following notes will show the return they have received for their money:—" In 1853 a regiment of 810 men lost 80 of its number whilst marching between Colon and Panama. Of 1,000 negroes imported from the West Coast of Africa not a man was alive within six months of landing. At another time, 1,000 Chinese were brought to the isthmus for the same work; within six months they were all dead. A French engineer came over with 17 assistants. In a month all but himself died of yellow fever. The French lost 22,189 labourers by death in five years, or a death rate of 240 per 1,000 per year. The great discoveries in tropical medicine in regard to the relation of mosquitoes to yellow fever took place between the French and the American periods of construction.

"Against the French rate of 240 deaths per 1,000 men, the present rate (1912) is only 7.5, and yellow fever has been entirely banished. There has not been a single case since May, 1906. With an average force of 33,000 the Americans have lost less than 4,000 since 1904, when they took over the work of constructing the canal."

An opportunity arose last year for witnessing another triumph of American sanitary ingenuity in Manila, where, despite many miles of shallow canals and many acres of swampy pools in a thickly populated city, mosquitoes have been got under and kept under by simple but well applied measures founded on scientific knowledge of their breeding habits.

We have in Queensland effective representatives or prototypes of all the species of disease-carrying mosquitoes. *Culex fatigans* has annually infected many persons with filariasis, and its crippling effects may be judged by the large number of surgical operations required annually at the Brisbane General Hospital for conditions of lymph-stasis caused by the parent worms. Dengue is all too familiar to Queenslanders. Malaria is an ever-present danger in our North, and during the year under review Cairns has suffered from a serious outbreak which has produced grave economic results amongst the many sufferers and their families. The severe and fatal malignant forms of malaria are present in incalculable amount in New Guinea, a very few days' steam from our Northern shores, and the disastrous economic results likely to accrue from an extensive infection of our North during the cane-cutting season have already been emphasised in previous reports. So far we have escaped yellow fever, but how long our immunity will continue after the Panama Canal opens and trade increases between our shores and the infected coastal centres of Western, South, and Central America, is open to grave doubt. We have the conveyor of yellow fever, the *Stegomyia fasciata*, as one of our commonest domestic summer mosquitoes, and only infection is required to transform these household worries into veritable arrows of death. It is impossible for anyone to say when this infection will be introduced amongst us.

These matters have been discussed at some little length in order that the operations now in progress in the Brisbane metropolitan area may be assessed at their true value. They are aimed, not at the mosquito as a mere domestic pest, but at certain species of mosquito as a factor of terrible possibilities in respect of the health and welfare of our State. Their underlying purpose is to limit and control the living vehicles of actual and potential disease, and to train and organise a line of defenders who may at any day have to stand between our population and the dreadful scourge of yellow fever. Details of the earlier stages of organisation of this force have been already described in the report for 1911-12, and it is now possible to describe and discuss some features and results of the scheme in being.

A full report by Assistant-Inspector Cooling, the officer in executive charge of the work, appears in Appendix J., and contains much valuable and interesting information.

The species against which attack has been principally directed are the *Culex fatigans* or brown house mosquito, conveyer of filariasis and probably dengue fever; the *Stegomyia fasciata* or "tiger" mosquito, potential conveyer of yellow fever; and the *Culex vigilax*, or black bush mosquito. The two former are active and dangerous agents of disease, the latter a pest of such exceptional activity and bloodthirstiness that, although no definite disease has yet been traced to it, the irritation and loss of rest arising from its attentions in summer appear to justify repressive measures. The breeding habits of these three principal species differ widely, and measures of suppression require to be directed accordingly. Broadly speaking, *Culex fatigans* breeds in dirty water, *Stegomyia fasciata* in clean water, and *Culex vigilax* in salt or brackish water. The first two are domestic mosquitoes, breeding almost wholly in the close vicinity of houses and travelling only relatively short distances, but *Culex vigilax* is a wild creature of migratory habits. Against the *Stegomyia fasciata* we principally employ tank screening, the rectification of defective roof-gutters, the removal or emptying of old tins, and similar measures. During 1911-12, 1,832 house tanks were examined and 679 found to be breeding *Stegomyia fasciata.* Only three tanks contained larvæ of *Culex fatigans*, but 75 per cent. of 187 street gullies were found to be breeding this species.

During the period under review, 11,684 premises were inspected, and 11,156 unscreened tanks discovered. Two thousand and seventy street gullies were oiled each week between November and May, 357 wells and pools were dealt with, and 204 rubbish collections liable to act as breeding places. Two thousand five hundred and twenty-three notices were served, and 2,997 follow-up visits made.

Investigations were also made by the Northern staff concerning mosquito infestation in Townsville. Over 90 per cent. of water tanks were thus found to be unprotected or insufficiently protected, and many premises were not only mosquito infested but were acting as breeding places. Of 773 premises examined, the larvæ of *Stegomyia fasciata* were found in 98, of *Culex fatigans* in 96, of *Culex vigilax* in 8, and of *Culex tigripes* in 3. In 107 of these premises adults of *Stegomyia fasciata* were found; in 144, adults of *Culex fatigans;* and in 44, adults of *Culex vigilax*. Anopheline mosquitoes were found in 10 premises. Four hundred and sixty-two tanks, 41 barrels, 32 puddles and 134 other domestic breeding places were located. Of 477 tanks examined, 102 contained larvæ, 56 were unprotected, 374 insufficiently protected, and only 47, or 9.9 per cent., were adequately protected against mosquito access.

The operations in Brisbane against *Culex vigilax* required detailed organisation on account of the considerable areas of the principal breeding swamps, and their distances apart. During the period under review 6,484 gallons of oil, mostly Australian "Argolite," were used in these places. The results were satisfactory, but until permanent measures of drainage and filling become feasible for the extensive areas of salt water swamps in and around Brisbane, constant attention will be required for the greater part of each year.

At the outset of active operations a conference was arranged with representatives of the local authorities of the metropolitan area. After some little delay, this eventuated on 11th December, 1912, and the eight local authorities concerned agreed to contribute £52 10s. apiece towards the expenses of a year's operations. Subsequently the shire of Stephens withdrew from their agreement. The proportion of total cost for the period under review borne by the local authorities under this arrangement was 50 per cent. The total cost amounted to less than 1¼d. per head of population in the area dealt with.

The results obtained have been satisfactory, and augur well for future success, but at least two more seasons of work will be required before the mosquito problem in Brisbane can be regarded as being well in hand. A large amount of popular educational work has been carried out in connection with the undertaking, in the form of lantern lectures by Assistant-Inspector Cooling, Inspector Beaver, and other officers, together with numerous practical demonstrations of the material and methods employed.

Some interesting work has been performed in connection with various species of larva-destroying fish, indigenous to Southern Queensland, and it is anticipated that certain of the observations so made will be found to possess a very practical bearing on the question of mosquito-suppression in natural and artificial collections of water. The much-advertised "millions" fish of Barbadoes has been found greatly inferior under local conditions to our own Firetail (*Austrogobio galii*), Spotted Sun-fish (*Rhombatractus fitzroyensis*), Green Perchlet (*Priopis olivaceus*), or Blue-eye (*Pseudomugil signifer*), which are common in pools and watercourses throughout our southern coastal districts. These fish are the most notable of the natural enemies of mosquitoes, and were it not for their useful and convenient choice of dietary many parts of this State would be quite uninhabitable during the summer months, save at vast cost for drainage, filling, and oiling, and would probably be devastated by malaria.

The well-known tendency of watercourses to act as mosquito breeding places after they have become fouled by admission of organic drainage is due to the fact that the contamination so caused renders the water unsuitable for larvivorous fish. The larvæ of several species of mosquitoes, particularly *Culex fatigans,* are thus enabled to develop freely, unchecked by their natural enemies.

The adaptability of *S. fasciata* in finding new breeding places is illustrated by the discovery of larvæ in fire-sprinkler tanks 120 feet above street level. Two years ago I found the same species breeding in the sump-pit of a mine at Charters Towers over 2,000 feet below the surface, and biting vigorously in the electrically-lit plat.

IX.—NORTHERN OFFICE.

The Northern office established last year at Townsville has continued to be conducted by Dr. J. Booth Clarkson, L.R.C.P., D.P.H., D.T.M.H. (Camb.), Medical Inspector for North Queensland, with a staff of three certificated sanitary inspectors. A clerk was appointed on 3rd April, 1913. Dr. Booth Clarkson's report appears in Appendix A.

The establishment of this base of operations 700 miles north of Brisbane has relieved the situation considerably with respect to disease emergencies in Northern Queensland. It also enables the Health Acts to be operated and enforced in North Queensland in a manner that would otherwise be impossible.

In addition to the extensive operations against diphtheria at Mackay and typhoid fever at Winton, the Northern staff has exercised supervision and secured improvements over a wide area of tropical Queensland. A visit was paid to North Queensland by the Chief Food Inspector and two food inspectors for the purpose of unifying the procedure of the local staff in respect of food inspection, and of investigating food questions generally.

Details of inspections made, unfit foodstuffs seized and destroyed, infectious diseases notified, and other work performed by the Northern staff will be found in the Appendices to Dr. Booth Clarkson's report, together with an interesting summary of observations relating to mosquito infestation of dwellings.

The question of partially decentralising the Northern inspecting staff to secure greater promptitude of local action in view of the distances separating the three main Northern railway systems is under consideration.

X.—LABORATORY OF MICROBIOLOGY AND PATHOLOGY.

The scope and nature of the work performed at the Department's Laboratory of Microbiology and Pathology will be apparent from the report of the Director (Dr. J. J. Harris, M.B., D.P.H.) appearing in Appendix C. Some 26,318 specimens were examined during the year under review. Although some reduction has occurred in the actual total of specimens examined, owing to the smaller number of rat carcasses which have been sent up for post-mortem examination under the altered system of rat-reduction operations, the scope of the Laboratory activities has been considerably extended. The Wassermann test for syphilis is now available for the assistance of medical practitioners, and much work has been done in the preparation of anti-typhoid immunising vaccine, and autogenous vaccines. Eleven thousand six hundred and thirty-five specimens were examined in connection with the diagnosis of diphtheria, 8,787 of these being contributed by Mackay and the surrounding district of Pioneer.

A well-equipped microbiological laboratory is an indispensable appurtenance of any organisation directed against communicable diseases. It is an essential tool for the control of such diseases "just as a chemical laboratory is necessary for the control of the milk supply. We cannot get along without either." (Dr. C. V. Chapin). The Laboratory of Microbiology is not only available for departmental requirements, but is, without charge, at the service of every local authority through their Medical Officer of Health, and in respect of diphtheria, typhoid fever, and consumption, of every medical practitioner in the State. This fact appears to be becoming realised only very slowly. The Laboratory is also of assistance to school medical inspection, and a large number of throat swabs have been examined in connection with school diphtheria inquiries.

It is again necessary to express a hope that in time local authorities in general will develop an interest in practical sanitation, and will take advantage of the scientific assistance which is so freely extended in aid of their work.

Dr. Harris points out the utter futility of sending specimens of water for bacteriological analysis from far away country districts to Brisbane, with a view to the detection of typhoid fever organisms. Apart from the fact that contaminated water is, probably, relatively infrequent as a source of typhoid infection in Queensland, the organism is shortlived in water, and before the case, on account of which the water is suspected, comes under medical attention some three weeks or more have usually elapsed. Finally, it is very improbable that the relatively delicate typhoid organism would survive the journey in the company of the vigorous and predatory water organisms. Recognition of this and similar facts by local authorities and their medical officers would relieve the Laboratory of much time-wasting work.

XI.—REGISTRATION OF NURSES.

The formal constitution of the Nurses' Registration Board was completed after the settlement of a technical difficulty. The Board consists of Dr. A. C. F. Halford, M.D., B.Sc. (chairman), Dr. J. B. McLean, M.D.B.S., Medical Superintendent of the Brisbane General Hospital, Dr. H. Byam Ellerton, Inspector-General of the Insane, Miss Hunter, Matron of the Brisbane General Hospital; and Miss Chatfield, Superintendent of the Diamantina Hospital.

Twenty-three formal meetings were held during the year under review, together with a number of informal sittings for preliminary dealing with applications for registration.

Six hundred and twelve general nurses, 598 midwifery nurses, and 112 mental nurses have been registered. In addition, 24 general nurses and 55 midwifery nurses have been registered by ministerial direction at the initative of the Board. The total number of nurses registered up to 30th June, 1913, is 1,401. The total fees accruing during the year under review were £575 16s., and an additional sum of £160. 14s. was received from candidates whose applications had been held over from the last fiscal year.

Regulations passed on 1st November, 1912, were found to present certain difficulties of working. They were amended by *Gazette* notice on 1st November, 1912, and since then have worked smoothly.

The Board has had under consideration the establishment of examining centres in cities and certain large towns outside Brisbane.

Twenty-eight general hospitals, two maternity hospitals, and two mental hospitals have been approved by the Board as training schools for nurses.

The report of the Nurses' Registration Board appears in Appendix F.

XII.—STAFF AND WORKING.

At the close of the period under review the headquarters staff consisted of a health officer, an assistant health officer, a secretary, a senior clerk, a chief sanitary inspector, a chief food inspector, four sanitary inspectors, four food inspectors, one assistant sanitary inspector and one assistant food inspector, a staff nurse, an assistant staff nurse, a typiste, three clerks, a cadet messenger, a disinfector (metropolitan area), a rat gang (metropolitan area) of eleven men under a foreman who is also an acting sanitary inspector, and a mosquito squad (metropolitan area) of four men. Six rat destroyers and fumigating officers are located at outports.

The staff of the Laboratory of Microbiology and Pathology included the Director, one principal assistant, two assistants, a clerk, and an attendant.

The staff of the Northern office at Townsville consisted of the Medical Inspector for North Queensland, three inspectors, and a clerk.

The clerical work of the Nurses' Registration Board was performed by the Secretary of the Department assisted by a typiste.

Administrative charge of the quarantine staff was transferred to the Federal Chief Quarantine Officer for Queensland on 23rd December, 1912. It comprised twelve medical quarantine officers, an inspector of shipping and fumigation, and three caretakers of quarantine stations.

Dr. Moore, Health Officer, acted as Deputy Commissioner of Public Health from 10th April to 4th July, during my absence in Northern Queensland and at the Conference on Uniform Standards for Foods and Drugs.

Dr. G. P. Dixon, M.B., M.Ch. (Edin.), was appointed Medical Officer to the Enthetic Diseases Dispensary, Brisbane, on 1st April, 1913.

Dr. M. Phipps, M.R.C.S. (Eng.), was appointed Assistant Health Officer on 13th February, 1913.

Miss L. Reidy was appointed Assistant Staff Nurse on 13th April, 1913.

Mr. H. W. Petherick was appointed Chief Food Inspector on 30th November, 1912. Messrs. C. W. Beaver and J. Stewart were appointed as Senior Food Inspectors on 30th November, 1912.

Messrs. A. N. Young and A. C. L. Mason were appointed as Food Inspectors on 30th November, 1912.

Mr. W. McNeil was appointed as a Sanitary Inspector on 23rd January, 1913.

All Inspectors of the Food and Sanitary divisions hold the Certificate of the Royal Sanitary Institute, and several have also gained other certificates in Sanitary Science, Meat and Food Inspection, &c.

Mr. R. P. Sanderson was appointed as Assistant Food Inspector on 19th December, 1912.

Mr. R. H. Walsh was transferred from the Chief Secretary's Department as Senior Clerk on 15th February, 1913.

Mr. T. Barnes was appointed as Record Clerk on 22nd July, 1912.

A tour of some 3,500 miles was undertaken in Northern and Eastern Queensland during April, May, and June, for the purpose of inquiring into local sanitary administration and matters affecting the sale and distribution of foodstuffs in the far northern portions of the State. The prevalence and extent of "Mossman Fever" at Port Douglas and Mossman, and a somewhat extensive outbreak of malaria which took place at Cairns in the earlier part of the year, also received attention. A valuable and interesting report on "Mossman Fever," by Dr. P. G. Clarke, of Port Douglas, appears in Appendix E1

Evidence was given before the Royal Commission on Uniform Standards for Foods and Drugs on 29th August and 4th September, 1912. The Second Conference on Uniform Standards for Foods and Drugs was attended at Melbourne, from 17th June to 27th June, 1913.

Inquiry was made in Melbourne and Sydney during the year under review concerning local action in operation or under consideration for dealing with venereal diseases.

XIII.—SOME DIFFICULTIES OF A PUBLIC HEALTH DEPARTMENT.

The most formidable obstacle which stands in the path of sanitary progress is that created by popular misapprehension concerning the sources and modes of infection of communicable disease. Complaints founded on the alleged risks or consequences of "sewer gas," "drain air," "drain smells," and other allegedly disease-generating odours which are supposed to "breed" every known variety of epidemic are constantly necessitating official correspondence and work. These beliefs cause real harm, by blinding the complainants and the local sanitary executive to the true origin and methods of spread of the very infections against which they are seeking protection. Instead of being feared and respected as bogies of disease, the dirty drain and the garbage nuisance, and the neglect which causes them, should be incontinently dealt with by the local sanitary inspector in the nearest police court as a breach of ordinary civic decency. Once the average citizen can be made to realise that simple means of intelligent personal and domestic hygiene are worth infinitely more as a protection against disease than any amount of warfare against a neighbour's fowlyard or the most lavish sprinkling of so-called "disinfectants," a great advance will have been brought about in the practical protection of the public health.

In this year of grace 1913 it is surely time that the stink doctrine of disease-causation should be given decent burial in oblivion, and the stink itself dealt with, wherever it occurs, by the efficient and unsentimental procedure of the police court. The most extensive stink that has ever been recorded in history occurred in London in 1857 and 1858. The sewage of some three millions of people festered and fermented in the Thames for two successive hot summers. The river was one vast open cloaca of filth lying in the midst of London. The steamers lost their traffic, the work of the law courts was broken up, and parliamentary committee rooms were only tenable after being fitted with deodorant-soaked screens. The Press teemed with letters of complaint and suggestion. The hot weather passed away, the returns of sickness and mortality were made up, and it was found that not only was the general death rate below the average, but that the leading peculiarity in the season was a remarkable diminution in the prevalence of fever, diarrhœa, and the other forms of disease commonly ascribed to putrid emanations. This is not an argument in favour of stinks as tonics or protective agencies, but an historical record of the results accruing in respect of health from the most powerful and fully developed stink that is ever known to have afflicted a large population for a long while.

Old ideas die hard, and it seems to be a far cry before public recognition can be gained for the fact that the primary function of a Public Health Department is not to clear choked drains, to abolish stinks, or to remove dead animals from backyards. These ordinary questions of civic and domestic decency do not necessarily require for their effective settlement any scientific training. The real value of an effective sanitary organisation is to be found in such activities as the provision and direction of means for accurate investigation and prevention of disease; in the supervision of food supplies against adulteration and the conveyance of disease; in locating and controlling the more dangerous type of disease "carrier"; in preventing communities from inadvertently consuming infected excreta with their food or water; in systematic and technically directed warfare against tuberculosis and venereal diseases, together with the social and other conditions which favour their spread; in securing the eradication or control of animal or insect vermin which are capable when infected of conveying disease to man; and of endeavouring to replace popular ignorance, apathy, and misdirected effort by an intelligent view of the actual factors concerned in disease and disease prevention, together with the deliberate intention to deal effectively with them.

Public health is to a large extent a purchasable commodity, and many things which are at present left undone at the cost of lives and health would soon be done if the people at large understood how much can be effected by a little money wisely spent. Scientific men can discover causes and devise methods of prevention, but only the people themselves can save themselves from the results of their own sanitary sins or ignorance.

In the course of a Presidential Address to a great London Congress in 1901, the late King Edward VII. summed up the whole matter in a few words. Said he: "The heaviest penalties of insanitary living fall upon the poor who are themselves least able to bear them, but no class is free from their dangers or sufficiently careful to avert them. . . . Where is there a family in which it might not be asked: If preventable, why not prevented?" The answer lies with the people.

If by some miracle the protection and conservation of health came to be regarded with the same enthusiastic popular interest as are, for example, football or horseracing, communicable diseases would rapidly disappear from the scheme of things, and many non-communicable diseases would follow them. An evident and much-felt requirement in a modern sanitary organisation is a publicity division, designed to reach the public with accurate and interesting matter bearing on individual and collective physical welfare and physical improvement. Shibboleths gleaned from advertisement hoardings and the dogmatic statements of the energetic ambassadors of "disinfectant" nostrums are not adequate to supply a correct public impression of the ends, aims, and methods of public health and personal hygiene. The issue of a Health Gazette has been under consideration for the past two years, but action has had to be deferred owing to pressure of other work.

XIV.—CONCLUSION.

My sincere thanks are due to a loyal and highly competent staff. The executive work of the last year has been particularly onerous and difficult, but it has been accomplished with a thoroughness and earnestness of purpose which cannot be too highly commended. A high level of efficiency may justly be claimed for the departmental organisation, and attainment of this has been rendered possible only by the keen personal interest in their work which has been displayed by officers of every grade.

I have, &c.,

J. S. C. ELKINGTON,
Commissioner of Public Health.

APPENDICES.

APPENDIX A.

REPORT OF MEDICAL INSPECTOR OF NORTHERN QUEENSLAND.

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14th July, 1913.

SIR,—I have the honour to submit the following report on the work of the Northern Sub-Office, for your information, for the year ending 30th June, 1913.

1. Places visited: The following places were visited either by myself or by the three inspectors of the Northern Sub-Office:—Ayr, Brandon, Brookville, Cooktown, Cairns, Chillagoe, Charters Towers, Cloncurry, Duchess, Eacham, Friezland, Hughenden, Ingham, Innisfail, Kirk River, Lucinda, Mackay, Mourilyan, Malbon, Nelson, Queenton, Richmond, Ravenswood, Rochford, Selwyn, Tolga, and Winton.

In all these places the systems of sanitary and garbage services, water supply, drainage, diseases, mosquitoes, rats, and in many cases foodstuffs, were inquired into, and recommendations for improvements in regard to the various subjects sent to the authorities concerned.

Three hundred and thirty-two Blue Notices were served, and as most of these places were visited twice or more, it was possible to check the manner in which the requirements thus specified were carried out.

Lectures were given, when possible, in many of the above places on hygienic subjects, and general individual and group instruction, which seems the most useful at all of them.

Two important campaigns to stamp out outbreaks of disease were carried on during the year.

DIPHTHERIA CAMPAIGN AT MACKAY.

Finding from the Disease Notifications that diphtheria seemed unduly prevalent at Mackay, I proceeded there on 2nd September, 1912, to investigate the matter. I found that the disease had become endemic and increasing.

At the request of the Mayor and the Medical Officers of Health for Mackay and Pioneer Shire, I went to Brisbane (by permission) to consult the Commissioner of Public Health in regard to the best way of dealing with the epidemic.

I returned to Mackay, accompanied by Inspector Dudley, and taking a hospital tent outfit. During my absence of about a week, the local authority had come to a financial arrangement with the District Hospital in regard to the treatment of infectious diseases.

This made arrangements more difficult, as the District hospital authorities wished to treat the diphtheria cases instead of an Isolation Hospital being established.

In order to give them an opportunity of laying their case before the Commissioner of Public Health I delayed inaugurating the Isolation Hospital. Finally, however, this had to be done, as the means at the disposal of the District Hospital would not have enabled them to cope with the epidemic.

A wholesale system of throat examination for schools, and for all who volunteered, was established, and the swabs taken were sent to the Bureau of Microbiology in Brisbane.

The town of Mackay and the shires of Pioneer and Sarina were placed under Diphtheria Regulations, which were strictly enforced.

The campaign assumed large dimensions, for instead of 40 or 50 carriers being found, as might have been expected, the number of carriers alone, apart from acute cases, extended to over 1,000.

The staff of the Isolation Hospital was obtained chiefly from Brisbane, and worked most satisfactorily. The acute cases were treated there and a certain number of carriers. But as only a limited number of the latter could be accommodated, those persons were selected whose duties brought them mostly in contact with the public and so were a danger to the community, such as schoolmasters, dairymen, and shop hands.

A centre for public treatment for the town was established at a shed near the Old Council Chambers. The treatment of the country carriers, owing to their being scattered over a very large extent of country, was at first a very serious problem, which was eventually met by establishing a corps of volunteer nurses who were stationed at various parts of the district and very admirably carried out their duties—namely, treating the carriers, collecting and forwarding swabs, and occasionally even investigating cases of diphtheria. The work was of a very strenuous nature, eventually requiring a staff consisting of myself, the Medical Inspector of Schools, three State Sanitary Inspectors, the two local Medical Officers of Health, the two local Sanitary Inspectors and the District Nurses' Corps, in addition to the staff of the Isolation Hospital. All worked admirably, and in some cases the duties extended from 5.30 a.m. till almost any hour at night. Eventually, the carrier and other cases began to diminish and I was able to leave the further conduct of the campaign in the hands of the local Medical Officer of Health on the 10th December, 1912.

Very full reports of this campaign were sent in at intervals. At the present time the disease seems well in hand, though the Diphtheria Regulations were extended to 30th June, 1913. Referring to these same regulations it may be mentioned that without them the epidemic could not have been dealt with at all.

I visited Mackay again for a fortnight, from 30th January, 1913, to ascertain that matters were being satisfactorily carried on.

Up to 30th June, 1913, the following is the Mackay position:—

" Carriers " treated	1,085
Mackay " Carriers "	578
Shires	507
Deaths (Isolation Hospital) . ..	3

One of these was hæmorrhagic diphtheria, and one malignant diphtheria.

At the Isolation Hospital, from 15th September, 1912, to 30th June, 1913, 124 cases of acute diphtheria were treated, 25 suspects and 85 "carriers."

At present there are only two "carriers" being treated in town and about 20 in the country.

Since the 8th April, there has been no true case of diphtheria treated in the municipality, but the disease still continues sporadically in the shire.

WINTON TYPHOID CAMPAIGN.

This is a good example of the rapidity with which an epidemic occurs.

As only seven cases of typhoid had been notified during the preceding twelve months, Winton was naturally regarded as a healthy place, and therefore it was a little surprising to receive sudden information to the effect that a severe and sudden outbreak had occurred at Winton and vicinity.

The three Northern inspectors were absent, Inspector Cottle being on leave and Inspectors Wiseman and Wright on tour. I at once wired Inspectors Wiseman and Wright to proceed directly to Winton, also Inspector Cottle to return to the office. I went out to Winton by the first available train, and the morning after went to Kynuna, where the worst outbreak had occurred.

There I found that the cause of the trouble was a case of typhoid imported from Melbourne. This had infected the shearers' cesspit-closets, from which flies had contaminated the food supplies.

After dealing with Kynuna, I returned at once to Winton and requested Mr. Spooner, the Acting Shire Clerk, to take action under 174**B**.

Regulations were drawn up and issued to the following:—

1. Station-owners or managers;
2. Shearers;
3. Public;

for the prevention of typhoid, and a card notice for Avoidance of Typhoid—namely, by preventive inoculation.

The town was thoroughly inspected and cleaned up, including the filling of over 80 cesspits, the presence of which seemed to be unknown until the inspectors discovered them. As it proved to be necessary to quarantine suspects an Isolation Ward had to be established.

The difficulty at first was the finding of a suitable building, but on 13th May the local Freemasons kindly loaned their hall, and the place was furnished, placed under the charge of a suitable wardman, and had six patients in it by the evening of the same date.

This shows the speedy way in which work can be carried out, when the Health Department receives the cordial support of a Shire Council, as was the case in this instance, and I can only say that the result was that the Health Department officials were able to do more good work in Winton in three days than in three weeks in

Mackay, which, of course, saved time, labour, and expense, and enabled greater efficiency and good work generally to be secured.

The special treatment inaugurated by the Health Department was anti-typhoid inoculation.

The following are the statistics of the typhoid epidemic to 30th June, 1913:—

Place.	Cases.	Deaths.
Kynuna Station	22	6
Ayrshire Downs Station	4	1
Other Stations	8	3
Total	34	10
Town	43	2

Total cases, 77.
Total deaths, 12.
Total death rate, 15·58 per cent. (all men).
Total town death rate, 4·65 per cent.
Total country death rate, 29·4 per cent.

It is interesting to note that all who died were men, and how much higher the death rate was from the country cases compared to the town. Probably the removal of the cases over jolting roads, for over a hundred miles at times, would account for this, and also that the town cases got under treatment earlier.

The heaviest mortality was amongst the men who came from the South, the Queenslanders getting off better. Possibly, the latter were acclimatised, and, being nearer home, had less mental worry.

ANTI-TYPHOID INOCULATION.

During the Winton outbreak this method of typhoid prevention was introduced on the earliest opportunity. I had endeavoured to bring it forward before in various places, but as there was no special occasion for it, people would not listen to merely preventive measures.

Even the deaths of Dr. Zeitz, Medical Officer of Health, Cloncurry, and Mrs. Englander (the wife of a well-known insurance agent), together with those of less well-known people, did not induce the community to consider inoculation.

But Winton was under different conditions; the epidemic was widespread, of a serious type, with numerous cases and of a high mortality. Consequently the people were in a position of being willing to choose what they considered the less of two evils, and came in in large numbers when they found that no bad effects followed.

By means of lecturing and notices showing its marvellous results in lessening the incidence of typhoid in the English, Anglo-Indian, German, and United States armies, the people realised that inoculation must be beneficial, and on being encouraged by Dr. Vernon, Medical Officer of Health, Winton, myself, and my staff being inoculated as an example, applied for inoculation to such an extent that the supply of vaccine was almost exhausted. The fact of the people being scattered over a large extent of country was a problem that had to be met, especially as the inoculations had to be performed three times at intervals of ten days, but an organisation was established which enabled all cases to be dealt with, and the results were most satisfactory.

The experience of this and other typhoid epidemics, both in military and civil life, has led me to the conclusion that the only way to deal with typhoid is by a large scheme of anti-typhoid inoculation, as is now practised in most of the principal armies of the world.

In spite of every precaution, the individual contaminated fly or grain of dust will escape destruction and infect food, and the "carrier" is always with us. It would act as a great preventive against typhoid if large bodies of men, such as shearers, canecutters, wellborers, miners, &c., could be inoculated before arriving at their various fields of work, or in the towns adjacent to them, before finally proceeding there.

Apart from external reports, the Winton typhoid epidemic has shown the value of the process, for it could not have been stamped out, especially considering the surrounding conditions, in so short a time but for anti-typhoid inoculation.

The following are the inoculation statistics to date:—

—	Males.	Females.	Total.
First Inoculation	280	140	420
Second Inoculation ..	160	111	271
Third Inoculation	99	81	180

The much higher death rate of the country cases shows how important it is for persons living a distance from a town, medical aid, or hospital, to be inoculated, for it would seem the chances of such persons recovering from an attack of typhoid are much less than for those living in the town.

FOOD INSPECTION.

Food inspection was actively carried out during the year, and especially later when the Food Staff visited the North.

The inspectors instructed the storekeepers at all the towns visited concerning the Food and Drug Sections of "*The Health Acts*, 1900-1911." Many applications were received for copies of the Food and Drug Regulations. A number of parcels of foodstuffs were dealt with and destroyed as being unfit for human consumption, mostly with the consent of the vendors. Over 13 tons were so destroyed.

It is most important that the Food and Drug Regulations should be enforced in the tropics in regard to imported articles, as the locally produced items of diet, such as meat, vegetables, milk, and fish do not seem to be as nutritive or as palatable as those produced further South.

WATER SUPPLIES.

These were inquired into at all the places inspected. At two places, namely, Ayr and Ingham, where the surface wells were peculiarly liable to contamination, recommendations were made that a suitable water supply be provided. In nearly all the coast towns, a source of contamination of the rain-water tanks was found to be the Indian mina.

This bird was imported as a tick destroyer, and is one of the protected birds. It seems, however, to prefer the town to the country, so does not fulfil the purpose for which it was imported.

Contamination is caused by the mina building its nest in the spouts and gutters of the roof, where it jams the nest so tightly that it is difficult to get it out.

SANITARY CONVENIENCES.

These were inspected in many places during various visits, and many improvements were carried out as instructed. But a good deal requires to be done still, especially in connection with hotels, and radical changes can only be effected by constant reinspections.

In most cases the sanitary service seems to be conducted at night, between the hours of 11 p.m. and 5 a.m.

The various shire councils were advised to conduct their sanitary services in the daytime, and this was at once done at Winton during the typhoid epidemic.

HOSPITALS.

A number of district hospitals were visited during the year. Many were in fairly good order, but one could not help being impressed with the fact that most of them had been constructed by architects who had no experience of hospital structure.

One fault in several of them was the fact that closets for both sexes were too close to the wards, being on the opposite side of the veranda.

In view of fly contamination, this constitutes a danger, and more especially where the hospital is not fly-proofed.

One hospital certainly deserves special mention for the admirable and disciplined way in which it was conducted—namely, the District Hospital at Cooktown, of which Dr. Kortum is medical superintendent.

RESERVE STAFF AND EMERGENCY SUPPLIES.

These are not very easily raised in the North, where all nurses apparently come from the South. The great difficulty was the question of the retaining fee, so far as the local population was concerned.

Such a fee would be difficult to arrange in view of the migratory habits of the said population.

The Mackay Volunteer Nursing Staff, however, placed themselves on the Reserve List without hesitation, and several volunteered for the Winton typhoid epidemic if required.

All these ladies would make good staff nurses, and be able to supervise a volunteer staff on emergency.

Endeavours were made to make arrangements in regard to supplies at the various centres, but the constant changes in prices prevented vendors quoting a price for future use.

GOVERNMENT PROPERTY.

The departmental property in the North of Queensland was inspected frequently during the year. That at the Isolation Hospital, Mackay, and the old Plague Hospital, Townsville, is in good order.

The small amount of property in charge of the Medical Officer of Health, Bowen, was sold and cheque remitted to the Department.

MEDICAL OFFICERS OF HEALTH.

Part time Medical Officers of Health have obviously a good deal to contend with in the discharge of their duties. Their hospitals and private practices are naturally their first care. This frequently prevents them from carrying out the duties laid down in "Instructions for Medical Officers of Health."

The size and scattered nature of their districts add materially to their difficulties.

In order that the duties of Medical Officers of Health may be carried out in strict accordance with the Regulations, it might be advisable, particularly as the population increases and so requires more careful supervision, to add a few full time Medical Officers of Health to the staff of the Health Department, who might be kept in the field all the time.

Several local Medical Officers of Health whom I have consulted on this point agree with me in the above suggestion, particularly when there is an epidemic on hand, which is the very time when their services are most required.

LOCAL SANITARY INSPECTORS.

Local sanitary inspectors, like Medical Officers of Health, find it difficult to carry out "Regulations for Sanitary Inspectors."

They frequently combine a number of other offices with that of sanitary inspector. This means that their other interests are liable to be injured if they are too active in performing their sanitary duties. This, of course, does not conduce to the efficiency of the work done, more especially as most of them have not undergone any systematic course of sanitary training.

The wonder is that under the circumstances so many of them do so well.

In many towns in North Queensland whole time qualified sanitary inspectors should be appointed, or, where non-certificated men are already appointed, they should be required to qualify within a given time.

Mackay and Pioneer Shire have already appointed whole time inspectors under the latter conditions, and Winton is now advertising for one. Meanwhile, the inspectors of the Northern Office are being kept on the move to ensure a satisfactory condition of affairs.

As women inspectors have been so successful, both in England and America, the advisability of adding some to the Public Health Department might be considered.

Infectious Diseases, etc.

The principal notifiable diseases during the year were diphtheria, of which the number of cases in North Queensland was 382, and typhoid, the number of cases being 293.

The most interesting places from "The Tropical Disease" standpoint were Innisfail and Ingham, where the following diseases are found: Ankylostomiasis, dengue, malaria, unclassified fevers, leprosy, and filariasis.

The heaviest incidence of disease has fallen on Mackay. That district had 198 cases of diphtheria and 248 cases of infectious disease all told. Winton comes next with 92 cases, 73 being typhoid and 19 diphtheria. Belyando, Bourke, Hughenden, Ravenswood, and Selwyn seem to have reported only one case of infectious disease during the year. The total number of infectious cases notified was 755.

Referring to typhoid fever and "fly" infection, the incidence would probably be much lessened if some regulation could be introduced requiring "fly-proofing" of kitchens and dining-rooms in the "fly" country, particularly in hotels and boarding-houses.

Notification of Infectious Disease.

From investigations made this cannot be considered satisfactory, and in many cases where notifications are sent in, a long time seems to have been taken in diagnosing the complaint, while often "suspicious" cases seem to escape being notified altogether.

This, of course, renders it difficult to know the sanitary conditions of a place as far as infectious diseases are concerned.

Rats.

Rat infestation, in view of the danger of plague, has been inquired into in all localities visited, and instructions given for their extermination so far as laymen can carry it out.

In Cairns, Townsville, and Mackay the ratmen have been active during the year, but the departmental rat man attached to this staff had to be withdrawn for a time for other purposes to Ayr, Charters Towers, and Winton.

So far as Townsville was concerned, no plague rats were discovered. Several suspicious "smears" were examined and proved negative.

The species distribution of 1,447 rats examined was as follows:—*Mus rattus*, 259; *Mus decumanus*, 1,115; and *Mus alexandrinus rufus*, 73.

Mosquitoes.

Mosquito reduction and prevention was carried out during the year, and surveys as to their localities made, especially in Townsville.

A good deal of public interest was roused which led to the usual preventive measures being carried out. Later it will be possible to extend the Noxious Insects section of the Health Act to some of the Northern towns.

An exhibit of the method of properly screening tanks is kept on view at a leading commercial establishment in Townsville.

Labour.

One of the greatest difficulties in the way of improving sanitary and health matters in the North is the expense of labour (when it can be got) and material.

It would be of great assistance in cases where numerous improvements had to take place if shire councils would engage a staff to do the required work and charge *pro rata*.

The work would then be cheaper, more uniform, and more efficient.

Aboriginals.

As a consequence of a report sent from the Northern Office, certain aboriginals infected with Ankylostomia, and so being a danger to the surrounding community, were removed to Rose Bay.

The various inspections show that aboriginals differ as to health in different parts of the country. Those in some places, such as Ingham, should be removed and concentrated where they can be better supervised.

If this cannot be done for adults, it should be for children.

The Ingham aboriginals seem peculiarly affected by phthisis and venereal diseases.

The Australian Tropical Institute.

During the year any specimens of mosquitoes, flies, or other "exhibits" which were likely to be of interest, were sent to the Director of the above institute.

Mr. Taylor, the Mosquito Expert of the institute, was also shown any localities of interest discovered by the Department's inspectors. The latter have instructions to collect any interesting material found during their inspections for the institute.

I have, &c.,
J. BOOTH-CLARKSON,
Medical Inspector, Northern Queensland.

The Commissioner of Public Health, Brisbane.

APPENDIX 1.

Summary of Notices of Breaches of The Health Acts Notified to Local Authorities during Twelve Months ending 30th June, 1913.

Place.	Served.	Completed.
Ayr	3	..
Charters Towers	1	..
Chillagoe	18	..
Cloncurry	37	7
Duchess	6	2
Hughenden	9	..
Mackay	2	8*
Nelson	25	25
Pioneer	34	23
Richmond	10	..
Selwyn	17	7
Thuringowa	..	13†
Townsville	168	60
Winton	2	2
Total	332	147

* Six from last year's notices. † From last year's notices.

APPENDIX 2.

Places Visited by M.I.N.Q. Outside Townsville.

Date.	Place.	Purpose Visit.
25-27 July, 1912	Ayr	General inspection
10 May, 1913	Ayrshire Downs	Typhoid campaign Anti-typhoid inoculation
16-23 Feb., 1913	Bowen	Official inspection
12-14 Sep., 1912	Brisbane	To consult with C.P.H. *re* Mackay diphtheria
27 June to 1 July, 1913	Cairns	Official inspection
8-12 Apr., 1913	Charters Towers	Official inspection
25-27 Mar., 1913	Cloncurry	Official inspection
1-2 Apr., 1913	Cloncurry	Official inspection
17-25 June, 1913	Cooktown	Official inspection
29-30 Apr., 1913	Duchess	Official inspection
20-21 Nov., 1912	Eton	Inspection and lecture
10 Nov., 1912	Farleigh	Inspection and lecture
28-29 Mar., 1913	Friezland	Official inspection
8 July, 1913	Halifax	Official inspection
4 Dec., 1912	Hill End	Inspection and lecture
4-7 Apr., 1913	Hughenden	Official inspection
28 June, 1913	Kuranda	Official inspection
30 April to 1 May, 1913	Kynuna	Official inspection
9-10 May, 1913	Kynuna	To perform inoculations
2-12 Sep., 1912	Mackay	Official inspection *re* diphtheria
16 Sep., to 10 Dec., 1912	Mackay	Diphtheria campaign
30 Jan., to 16 Feb., 1913	Mackay	Reinspection *re* diphtheria campaign
29 Mar., 1913	Malbon	Official inspection
7 Dec., 1912	Mirani	Inspection and lecture
13-14 Nov., 1912	Marian	Inspection and lecture
30 June, 1913	Nelson and Mulgrave Mill	Official inspection
20 Feb., 1913	Proserpine	Official inspection
10 Apr., 1913	Queenton	Official inspection
12-16 Apr., 1913	Ravenswood	Official inspection
2-4 Apr., 1913	Richmond	Official inspection
23-25 Nov., 1912	Sarina	Inspection and lecture
27-28 Mar., 1913	Selwyn	Official inspection
17 Nov., 1912	Walkerston	Inspection and lecture
21 Nov., 1912	Walkerston	Lectured at 3 p.m. and 8 p.m.
29 Apr., 1913	Winton	Typhoid campaign
2-9 May, 1913	Winton	Typhoid campaign
10-18 May, 1913	Winton	Typhoid campaign
3-11 June, 1913	Winton	Typhoid campaign

At all the lectures microscopic demonstrations were given, when the diphtheria and allied bacilli were shown.

APPENDIX 3.

Inspectors' Visits outside Townsville from 1st July, 1912, to 30th June, 1913.

Date.	Place.	Inspector.	Purpose of Visit.
29 Oct. to 2 Nov., 1912	Ayr	R. A. Wright	Special enquiry *re* sanitary conditions
31 Oct. to 2 Nov., 1912	Ayr	S. B. Cottle	Special enquiry *re* sanitary conditions
16-18 June, 1913	Ayr	R. A. Wright	Food inspection
13-14 Jan., 1913	Arbouin	S. B. Cottle	Sanitary survey
18-19 June, 1913	Brandon	R. A. Wright	Food inspection
27-28 June, 1913	Brookville	R. A. Wright	Special food inspection
2-9 Sep., 1912	Charters Towers	J. G. Wiseman	Special investigation *re* milk supply
8-13 Jan., 1913	Chillagoe	S. B. Cottle	Sanitary survey and infectious disease investigation
21 Apr., 1913	Charters Towers	J. G. Wiseman	Cyaniding police quarters
13-30 Jan., 1913	Cloncurry	J. G. Wiseman	Sanitary survey
22-29 Apr., 1913	Cloncurry	R. A. Wright	Resurvey and typhoid enquiry
31 May to 3 June, 1913	Cloncurry	S. B. Cottle	Infectious disease investigation
30-31 May, 1913	Duchess	S. B. Cottle	Resurvey and infectious disease investigation
27-29 May, 1913	Friezland	S. B. Cottle	Resurvey and infectious disease investigation
18-20 Jan., 1913	Friezland	J. G. Wiseman	Sanitary survey
6-10 June, 1913	Hughenden	S. B. Cottle	Sanitary survey
29-30 Apr., 1913	Hughenden	R. A. Wright	General inspection
23 Sep. to 9 Oct., 1912	Innisfail	J. G. Wiseman	Survey and *re* sanitary service installation
29-30 June, 1913	Kirk River	R. A. Wright	Food inspection
7 May, 1913	Kureen	S. B. Cottle	Sanitary survey and disease investigation
5-6 May, 1913	Malanda	S. B. Cottle	Sanitary survey and disease investigation
14 Sep. to 25 Oct., 1912	Mackay	R. A. Wright	Diphtheria outbreak
10 Oct. to 3 Jan., 1913	Mackay	J. G. Wiseman	Diphtheria outbreak
4 Nov. to 6 Dec., 1912	Mackay	R. A. Wright	Diphtheria outbreak

APPENDIX 3—*continued.*

INSPECTOR'S VISITS OUTSIDE TOWNSVILLE FROM 1ST JULY, 1912, TO 30TH JUNE, 1913—*continued.*

Date.	Place.	Inspector.	Purpose of Visit.
17-24 Mar., 1913	Mackay	R. A. Wright	Court case *re* sanitary conditions
17 Jan., 1913	Muldiva	S. B. Cottle	Sanitary survey
29-30 May, 1913	Malbon	S. B. Cottle	Sanitary survey
3-6 Jan., 1913	Nelson	S. B. Cottle	Sanitary survey
7 May, 1913	Peeramon	S. B. Cottle	Sanitary survey
22-26 Apr., 1913	Queenton	J. G. Wiseman	Inspection of dairies
3-5 June, 1913	Richmond	S. B. Cottle	Sanitary survey
26-28 June, 1913	Ravenswood	R. A. Wright	Food inspection
30 June, 1913	Rochford	R. A. Wright	Food inspection
23-27 May, 1913	Selwyn	S. B. Cottle	Sanitary survey and infectious disease investigation
20-22 Jan., 1913	Selwyn	J. G. Wiseman	Sanitary survey
3-9 Mar., 1913	Tolga	J. G. Wiseman	Sanitary survey and selection of nightsoil disposal ground
29 Apr. to 9 July, 1913	Winton	J. G. Wiseman	Typhoid outbreak
1 May to 2 June, 1913	Winton	R. A. Wright	Typhoid outbreak
8-10 May, 1913	Yungaburra	S. B. Cottle	Sanitary survey

APPENDIX 4.

TOTAL FOODSTUFFS DESTROYED AS UNFIT FOR HUMAN CONSUMPTION FROM 1ST JULY, 1912, TO 30TH JUNE, 1913.

Date.	Articles.	Quantity.	Tons.	cwt.	qr.	lb.
6 July, 1912	Condensed Milk	44 tins	0	0	1	16
6 July, 1912	Herrings, tinned	7 tins	0	0	0	7
6 July, 1912	Jam	2 tins	0	0	0	3
6 July, 1912	Mackerel	1 tin	0	0	0	1
24 July, 1912	Marmalade	22 tins	0	0	1	16
24 July, 1912	Conserve	2 tins	0	0	0	2
24 July, 1912	Herrings	3 tins	0	0	0	3
24 July, 1912	Salmon	1 tin	0	0	0	1
24 July, 1912	Corned Beef	8 tins	0	0	0	8
16 Aug., 1912	Preserved Fruit	1 tin		..		
29 Aug., 1912	Ling Fish	1 case		..		
18 Sep., 1912	Onions	147 crates	8	0	0	0
18 Sep., 1912	Potted Anchovy	19 boxes	0	1	1	8
15 Jan., 1913	Grapes	25½ cases	0	8	0	14
18 Jan., 1913	Raisins	14 boxes	0	0	1	0
24 Jan., 1913	Potatoes	36 bags	3	12	0	0
6 Feb., 1913	Fish—salted Salmon	3 kegs	0	2	2	20
20 Mar., 1913	Fish—tinned Salmon	312 1 lb. tins	0	2	3	4
9 Apr., 1913	Peas, tinned	1,230 tins	0	10	3	26
13 June, 1913	Herrings	15 tins	0	0	0	13
14 June, 1913	Herrings and Sardines	10 tins	0	0	0	5
19 June, 1913	Sardines	7 tins	0	0	0	3
20 June, 1913	Haddock	3 tins	0	0	0	3
23 June, 1913	Peaches	Loose	0	0	0	5
23 June, 1913	Jam	4 tins	0	0	0	4
27 June, 1913	Evaporated Apples	18 packages	0	0	0	18
27 June, 1913	Sultanas	Loose	0	0	0	3
27 June, 1913	Raisins	Loose	0	0	0	6
27 June, 1913	Pickles	11 bottles	0	0	0	11
27 June, 1913	Salmon	1 tin	0	0	0	1
27 June, 1913	Stoned Raisins	4 packages	0	0	0	4
27 June, 1913	Condensed Milk	14 tins	0	0	0	14
27 June, 1913	Baking Powder	12 tins	0	0	0	6
27 June, 1913	Preserved Fruit	7 tins	0	0	0	14
27 June, 1913	Sardines	2 tins	0	0	0	1
27 June, 1913	Anchovette	5 small jars	0	0	0	1
27 June, 1913	Biscuits	4 lb.	0	0	0	4
27 June, 1913	Fairy Cakes	10 lb.	0	0	0	10
27 June, 1913	Whitebait	1 tin	0	0	0	1
27 June, 1913	Dried Pears	½ case	0	0	0	14
27 June, 1913	Dried Peaches	½ case	0	0	0	12
27 June, 1913	Preserved Fruit	19 tins	0	0	1	10
27 June, 1913	Lime Fruit Juice	10 bottles	0	0	0	17½
27 June, 1913	Dried Peaches	4 packages	0	0	0	4
30 June, 1913	Dates	12 packages	0	0	0	12
30 June, 1913	Jam	1 tin	0	0	0	2
30 June, 1913	Jam	22 tins	0	0	0	22
30 June, 1913	Fresh Herrings	44 tins	0	0	1	16
30 June, 1913	Condensed Milk	97 tins	0	0	3	13
30 June, 1913	Preserved Fruit	12 bottles	0	0	0	24
30 June, 1913	Ling Fish	11 packages	0	0	0	11
30 June, 1913	Milk Food	1 tin	0	0	0	1
30 June, 1913	Force	11 packages	0	0	0	11
30 June, 1913	Sultanas	Loose	0	0	0	6
30 June, 1913	Prunes	Loose	0	0	0	3
	Total	..	13	3	0	14½

APPENDIX 5.

Distribution of Cases of Infectious Diseases, from 1st July, 1912, to 30th June, 1913.

——	Typhoid Fever.	Scarlet Fever.	Puerperal Fever.	Diphtheria	Erysipelas.	Phthisis.	Ankylostomiasis.	Infantile Paralysis.	Total.
Ayr	7	..	..	5	..	..	..	..	12
Barron	..	..	..	..	..	..	3	..	3
Belyando	1	..	..	..	..	..	..	..	1
Bourke	1	..	..	..	..	..	..	..	1
Bowen	..	..	..	..	..	1	..	1	2
Cairns	..	..	..	2	..	..	..	..	2
Carpentaria	..	..	..	1	..	1	..	..	2
Charters Towers	16	..	..	65	..	10	..	..	91
Chillagoe	15	..	..	6	..	6	..	..	27
Cloncurry	48	..	..	2	..	4	..	..	54
Croydon	9	..	..	..	..	..	..	..	9
Dalrymple	1	..	..	1	..	..	..	..	2
Douglas	1	..	..	7	..	..	..	..	8
Eacham	..	..	..	2	..	..	..	..	2
Einasleigh	9	..	..	..	..	1	..	..	10
Flinders	5	..	..	4	..	2	..	..	11
Herberton	..	1	..	21	..	..	..	..	22
Hinchinbrook	..	..	2	1	..	..	1	..	4
Hughenden	..	..	..	1	..	..	..	..	1
Innisfail	..	..	..	..	..	..	2	..	2
Johnstone	..	..	..	..	..	..	2	..	2
Mackay	17	..	3	120	5	15	1	..	161
Mackinlay	46	..	..	2	..	..	..	..	48
Pioneer	4	..	..	74	2	2	..	..	82
Queenton	4	..	..	26	..	5	..	..	35
Ravenswood	..	..	..	1	..	..	..	..	1
Sarina	1	..	..	4	..	..	..	..	5
Selwyn	1	..	..	..	..	..	..	..	1
Thuringowa	2	..	..	1	..	..	..	..	3
Townsville	28	..	..	10	..	2	4	..	44
Walsh	4	..	..	2	1	2	..	..	9
Winton	73	..	..	19	..	..	..	..	92
Wolfram	..	..	..	2	..	..	..	..	2
Woothakata	..	..	..	3	..	1	..	..	4
Total No. Reported	293	1	5	382	8	52	13	1	755

APPENDIX 6.

Mosquito Survey of Townsville, 1912-1913.

The whole of the Townsville Area which surrounds the base of Castle Hill has been divided into convenient blocks for the purpose of Mosquito Survey work.

The town is separated into four wards—namely, North, East, South, and West. These have been subdivided into 23 blocks of approximately equal areas.

The varieties of mosquitoes found include the following:—*Stegomyia fasciata, Culex fatigans, Culex vigilax, Culex trigripes, Anophelinæ, Culicelsa annulirostris, Mucidus alternans.*

A summary of the places visited shows that the above varieties appeared, either in the adult or larval stages, in the ratios herewith:—*Stegomyia fasciata,* 26.2 per cent.; *Culex fatigans,* 31 per cent.; *Culex vigilax,* 6.7 per cent.; *Anophelinæ,* 1.2 per cent.; others, .65 per cent.

Suitable breeding-places (exclusive of rain-water tanks) were found in 26.7 per cent. of the premises visited.

Owing to the public water supply being available, the number of rain-water tanks used is somewhat lessened, thus making a percentage for these commodities of 59.9.

Attached is a table showing the number and condition of rain-water tanks as regards the exclusion or otherwise of the adult mosquito, where it will be seen that over 90 per cent. are either unprotected or insufficiently protected.

As most of the inspections shown were carried out in the cool or excessively rainy seasons, the proportion of larvæ found appears small. No doubt, in many instances the evidences of larvæ being present were unavailable owing to the tanks' repeated overflowing.

Many have adopted means for the exclusion and destruction of mosquitoes in and about their premises, but where advice has been rejected or unheeded, the self-respecting portion of the inhabitants living near by are penalised by the neglect of these people.

The amount of infestation in reference to the four Wards is as follows:—

Townsville.	Mosquitoes found per 100 Houses Visited.	Breeding Places found per 100 Houses Visited.
North Ward	62·26	89·13
East Ward	53·43	62·61
South Ward	89·1	87·6
West Ward	72·32	94 57
Whole District	69·28	83·48

Table of Mosquito Infested Premises visited during Mosquito Survey Work at Townsville.

Block.	Larvæ.				Adult.					Tanks.	Barrels.	Puddles.	Others.	Drains	No. of Houses.
No.	Stegomyia Fasciata.	Culex Fatigans.	Culex Vigilax.	Tigripes.	Stegomyia Fasciata.	Culex Fatigans.	Culex Vigilax.	Anopheline.	Various.						
1	7	9	..	..	9	7	..	..	..	11	10	6	10	..	21
2	1	3	..	..	4	3	..	..	..	6	2	..	7	..	13
3	1	2	..	..	3	3	..	1	..	18	1	..	..	..	23
4	1	6	..	..	9	19	..	1	Mucidus Alternans 1	26	2	1	13	..	40
5	..	3	2	..	8	2	6	..	..	46	4	1	..	..	60
6	..	1	..	..	..	7	6	..	..	36	..	..	..	..	.79
7	14	2	3	1	18	5	7	..	..	36	2	..	9	..	41
	24 or 8·66%	26 or 9·3%	5 or 1·8%	1 or ·3%	51 or 18·4%	46 or 16%	19 or 6·8%	2 or ·7%	1 or ·3%	179 or 64·6%	21 or 7·58%	8 or 2·89%	39 or 14·07%		277
8	4	2	2	..	1	1	27	..	..	47	..	..	..	Hospital 1	75
9	..	1	..	..	2	9	3	..	..	14	..	..	..	..	24
	4 or 4·04%	3 or 3·03%	2 or 2·02%	.. ..	3 or 3·03%	10 or 10·01%	30 or 31·3%	..	..	61 or 61·6%	..	..	..	1 or 1·01%	99
10	9	11	..	..	..	11	..	6	..	12	6	9	18	..	31
11	7	5	..	..	..	17	..	2	..	34	2	3	2	..	50
12	15	1	..	..	..	27	..	..	..	37	2	3	6	..	109
13	27	29	..	..	39	17	1	Uranotaenia 1 Annulirostris 1 Tigripes 1	3	62	10	9	49	..	109
15	1	..	..	..	4	12	2	..	..	57	..	..	..	..	40
	59 or 17·4%	46 or 13·5%	..	..	43 or 12·6%	84 or 24·7%	3 or ·88%	8 or 2·36%	3 or ·88%	202 or 59·5%	20 or 5·9%	24 or 7·07%	75 or 22·1%	..	339
27	3	10	..	..	5	..	..	..	..	10	..	..	19	..	31
28	8 19·2%	11 36·8%	1 1·7%	2 3·5%	5 17·5%	4 7%	1 1·7%	..	Tigripes 1 1·7%	10 35%	2 3·5%	.. ..	9 49·1%	..	27
	11	21	1	2	10	4	1		1	20	2		28 133†	..	58
19	98 or 12·6%	96 or 12·4%	8 or 1·0%	3 or ·38%	107 or 13·8%	144 or 18·6%	44 or 5·69%	10 or 1·29%	5 or ·65%	462 or 59·9%	41 or 5·3%	32 or 4·14%	134 or 17·33%	..	773

Condition of Rainwater Tanks, Mosquito Survey, Townsville.

—	Total Number of Tanks.	Tanks Containing Larvæ.	Tanks Unprotected.	Tanks Insufficiently Protected.	Tanks Properly Protected.
Block No. 1	11	10	1	8	2
2	6	4	1	5	..
3	18	7	1	16	1
4	26	7	2	22	2
5	46	5	2	38	6
6	36	..	2	32	2
7	36	20	4	27	5
	179	53 or 29·6 %	13 or 7·3 %	148 or 82·7 %	18 or 10 %
8	46	3	10	32	4
9	30	5	2	20	8
	76	8 or 10·5 %	12 or 15·7 %	52 or 68·6 %	12 or 15·7 %
10	12	1	3	8	1
11	34	10	8	26	..
12	37	9	6	30	1
13	62	14	8	49	5
15	57	1	4	46	7
	202	35 or 17·5 %	29 or 14·4 %	159 or 78·7%	14 or 6·9 %
21	10	4	1	8	1
22	10	2	1	7	2
	20	6 or 30 %	2 or 10 %	15 or 75 %	3 or 15 %
Totals	477	102 or 21·3 %	56 or 11·7 %	374 or 78·4 %	47 or 9·9 %

APPENDIX B.

REPORT OF HEALTH OFFICER.

Sir,—I have the honour to submit my report for the year ending 30th June, 1913.

Metropolitan Area.

Diphtheria having been prevalent during the greater part of the year, a close watch is required to be kept on possible carriers. On several occasions it was necessary for one of the Department's nurses to follow up recent cases for the purpose of taking swabs for bacteriological purposes. On some occasions positive swabs were obtained, when it became necessary for the nurses to keep such cases under surveillance until three swabs taken at twenty-four hours' interval proved negative.

The work of the rat gang having been reorganised, and the onus of the clearing of premises of the rodents being placed on the occupier or owner, the number of rats destroyed during the year (17,378) is not as high as usual for the Metropolitan Area. However, good and permanent work is being undertaken by the Department's rat gang (under trained officers) to make premises ratproof where desired.

Places Visited.

Blair Athol, in connection with an outbreak of enteric fever. The conditions found in this place quite accounted for the spread of the disease. The immediate steps ordered to be taken proved effective.

Warwick, in connection with the water supply. The existing supply being dangerous from pollution, a new source was being sought.

Stanthorpe and Caboolture, in connection with a reported outbreak of enteric fever.

Coolangatta, for choosing a site for a sanitary depôt.

Ipswich, in connection with a nuisance from the rubbish tip.

Lazaret, Peel Island.

The total number of lepers remaining on 30th June, 1912, was			58
Admitted during the year ending 30th June, 1913	Whites	2	
	Coloured	10	12
			70
Died during the year ending 30th June, 1913	Whites	2	
	Coloured	10	
Discharged during the year ending 30th June, 1913	Coloured	1	
Absconded during the year ending 30th June, 1913	Coloured	1	14
			56

Leaving a total of 56 on 30th June, 1913, made up as follows:—

White Females	5	
White Males	18	23
Coloured Females	3	
Coloured Males	30	33
		56

The male coloured inmates included—aboriginals, 5; kanakas, 19; Chinese, 4; Japanese, 1; Cingalese, 1; total, 30.

The varieties of disease amongst the patients were:—

1. Nodular Leprosy.
2. Anæsthetic Leprosy.
3. Tuberculo-anæsthetic Leprosy.

The treatment adopted has been the recognised Chaulmoogra oil; also dugong oil.

Nastin was given in selected cases during the year by the hypodermic method. The results in my opinion do not justify a continuance. I intend, subject to approval, to suspend this treatment for twelve months.

The inmates whom I find improving are those who, coming under attention in the early stage, are not afraid to work, or to take plenty of exercise, and so promote free perspiration; this latter, combined with a plentiful use of soap and water and good dieting, which is provided for them, appears to exercise favourable effects on most cases.

I am pleased to be able to report that I hope, during the next six months, to be able to recommend the names of at least five inmates for release on surveillance. Clinical and bacteriological evidence of leprosy has been negative for these people during the past nine months, although previously well marked.

Vaccination.

This was apparently a dead letter during the year, as less than a dozen persons were operated upon by me.

I have, &c.,
J. I. MOORE,
Health Officer.

The Commissioner of Public Health, Brisbane.

APPENDIX C.

REPORT OF THE DIRECTOR, LABORATORY OF MICROBIOLOGY AND PATHOLOGY.

Laboratory of Microbiology and Pathology,
Brisbane, 20th July, 1913.

SIR,—I have the honour to submit the following report of the work done in this sub-department of the Department of Public Health during the year ending 30th June, 1913.

PLAGUE.—Human: Only three specimens were received for examination under this heading, and all found negative. Animal: Under this heading only 8,420 rats and 755 mice were received for examination, which is a considerable falling off compared with last year.

On the other hand, over twice as many spleen smears were received from Townsville and Mackay for examination.

TUBERCULOSIS.—Four hundred and seventy-one specimens, chiefly sputa, were received and examined during the year, being approximately a 30 per cent. increase on last year.

TYPHOID.—Of bloods examined for Widal's reaction there has been nearly 90 per cent. increase, with a corresponding increase of positive reactions. There have also been 26 water, 13 fæces, and 9 urine specimens examined, none of them being positive. The majority of this time-consuming work on water, fæces, and urine was naturally without result, because the time it takes for a water specimen to get, say, from Winton to Brisbane, is quite sufficient to enable the natural water organisms to rid the water from *B. Typhosus* even if it were there originally.

FILARIA.—But little work was done in this work, because of the apparent inability of the average general practitioner to make suitable slides.

DIPHTHERIA.—During last year we examined 148 diphtheria samples with 17 positive.

This year, owing to a widely spread outbreak at Mackay, and smaller ones at Childers, Many Peaks, Kingaroy, and Upper Coomera, there was a sudden increase of these cultures to 11,635, of which 2,497 were returned as positive.

I had hoped to return you a more complete detailed report, from which conclusions could be drawn as to the particular form of bacillus found in certain families, as to form of construction and general sanitation of dwellings, the form and order of bacillus encountered in children as to age and sex, and an attempt to ascertain from statistics what relation, if any, the *B. Hofmann* bears to the true *B. Diphtheriæ*.

This form of information I found it impossible to get, but from the records taken, it might be deemed possible to send an inspector to obtain the required information.

From general practitioners, 967 culture media were received, of which 236 were positive.

A peculiar feature restricted to medical men as a class has been the careless way in which they often treat the Government property supplied for their assistance.

Some eighteen months or so ago the practice was instituted of sending out tin boxes, each containing a tube of media and a tube holding a sterile swab. These tubes were sent out as required until a month ago, when we had only six in stock. By taking careful note of the number sent out to each man and the number returned, and refusing to send any more till all those supplied had been two-thirds returned, we have now a stock of 32.

LEPROSY.—The total of examinations of suspected leprosy has been more than 100 per cent. in excess of the total of last year.

GONORRHŒA.—The increase in examinations for this disease has been about 80 per cent. in excess of last year.

ANKYLOSTOMIASIS.—The examination of fæces for this parasitic condition shows but a slight increase.

There have been a few examinations for malignant pustule, pernicious anæmia, anthrax, and hydatid, the totals being but one less than last year.

SYPHILIS.—The Wassermann test for syphilis was begun here early in March, but was not taken any advantage of until April, when the hospitals sent along specimens nearly every week.

Since the test was begun, forty-six sera have been examined, eight of which were positive.

SECTION CUTTING AND DIAGNOSIS.—One hundred and sixty-five human specimens of tissue were cut and reported on, and there have at times been complaints of delay in furnishing a report. These complaints have invariably been due to the fact that no clinical report of the case was sent, or only a fragmentary or incomplete report.

When a section is doubtful in the eyes of a pathologist, it would often be clear if a short history of the disease or tumour were supplied, and much reading and nerve strain would thus be saved to the pathologist, and much fuss and fury to the sender.

Some practitioners absolutely ignored repeated applications for a history of the case.

Three animal tissues were also cut and reported on.

MEDICO-LEGAL WORK.—Very little of this work was done during the year, and included examinations of garments for spermatozoa in three cases of rape and examinations of clothing, hats, knives, sheets of tin, and boards for human blood stains.

AUTOGENOUS VACCINES.—The number of these vaccines during the year was increased well over 100 per cent. compared with last year.

ANTI-TYPHOID VACCINATION.—Anti-typhoid prophylaxis has at last apparently made itself popular throughout the North and West of the State, because in about three months we have sent away 1,887 immunising doses of typhoid fever vaccine.

Preparations are under way for the making of 5,000 doses about the beginning of September.

Doses of immunising vaccine are about to be supplied to the hospitals for use on the staff.

There are also to be supplied to the hospitals doses of Besredka's sensitised vaccine for therapeutic use, and I am inclined to think that the use of such a vaccine will make a difference in their reports of deaths from typhoid fever.

In addition to this work, there were a few rather important examinations under the heading of Miscellaneous, including examinations of urine, pus, blood, and sputum.

Under disinfectants, only nine were examined and three received last year remain unexamined, because it requires a man's undivided attention for an afternoon to do a proper Rideal-Walker test, and in a busy laboratory such half-days are difficult to arrange for.

If purely public health work, such as water examinations, disinfectants, foods, and filters, increases very much more, it would, I think, be advisable to try and obtain an additional hand accustomed to the work.

CONDUCT OF OFFICERS.

The conduct of the officers during the year has been excellent throughout, and, what surprised me, considering that they are ineligible for overtime pay, they were more than willing to stay back and work at night and on Sundays when the work necessitated their doing so.

A tabular summary of the specimens above referred to will be found appended.

I have, &c.,

JOHN J. HARRIS, Director.

The Commissioner of Public Health, Brisbane.

TABLE GIVING PARTICULARS OF SPECIMENS EXAMINED AT LABORATORY OF MICROBIOLOGY DURING YEAR ENDING 30TH JUNE, 1913.

Disease Suspected.	Nature of Specimen.	Number.	Positive.
Plague	Agar Culture	1	..
	Blood and Lymph	1	..
	Blood and Culture	1	..
	Rats	8,420	..
	Mice	755	..
	Mackay Smears	1,144	..
	Townsville Smears	2,726	..
Tuberculosis	Sputum	459	184
	Urine	10	1
	Pus	2	1
Typhoid	Blood	461	155
	Water	26	..
	Fæces	13	..
	Urine	9	..
Filaria	Blood	5	..
	Urine	1	..
Diphtheria	Throat-swabs	967	236
	Throat-swabs (Mackay)	8,787	1,945
	Throat-swabs (Childers)	1,452	234
	Throat-swabs (Many Peaks)	121	10
	Throat-swabs (Kingaroy)	195	50
	Throat-swabs (Upper Coomera)	103	20
	Slate-swabs	6	..
	Nose-swabs	4	2
Leprosy	Blood	4	..
	Serum	69	28
	Nasal Mucus	3	..
	Pus	2	..
	Portions of Skin	2	..
Gonorrhœa	Pus	46	14
	Urine	1	..
Ankylostomiasis	Fæces	9	1
Cerebro-Spinal Meningitis	Cerebro-spinal Fluid	6	..
Malignant Pustule	Serum	1	..
Pernicious Anæmia	Blood	1	..
Syphilis	Ulcer of Lip	1	..
	Blood	46	8
Anthrax	Pus	1	..
Hydatid	Sputum	1	..
Malignancy	Human Tissue	165	..
	Animal Tissue	3	..
Medico-Legal	Garments for spermatic stains	1	..
	Garments for blood stains	2	2
	1 piece of galv. iron, 1 piece kerosene tin, 1 board, 3 sheath knives, 1 shirt, for human blood stains	7	4
	1 shirt, pair of trousers, cap, saddle, pair of boots, pocket knife, grass and leaves, material from whip handle, for human blood stains	8	6
	1 hat, dress, underskirt, petticoat, pair of drawers, for blood stains	5	5
	1 hat, dress, underskirt, petticoat, pair of drawers, for spermatic stains	5	1
	Forward	26,058	

TABLE GIVING PARTICULARS OF SPECIMENS EXAMINED AT LABORATORY OF MICROBIOLOGY DURING YEAR ENDING 30TH JUNE, 1913—*continued.*

Disease Suspected.	Nature of Specimen.	Organism.	No.
	Brought forward	..	26,058
Autogenous Vaccines	Pus from Ear	Staph-Aureus	4
	Pus from Eye	Staph-Aureus	1
	Pus from Furuncle	Staph-Aureus	5
	Pus from Leg	Staph-Aureus	1
	Pus from Carbuncle	Staph-Aureus	1
	Pus from Face	Staph-Aureus	1
	Uterine Discharge	Staph-Aureus	2
	Chronic Discharge	Staph-Aureus	1
	Discharge from Ear	Staph-Aureus	1
	Blood	Staph-Aureus	1
	Pus	Staph-Aureus	6
	Pus from Face	Staph : Albus	1
	Pus from Urethra	Staph : Albus	1
	Discharge from Throat	Staphylococcus	1
	Discharge from Ear	Staphylococcus	2
	Discharge from Chest	Staphylococcus	1
	Vaginal Discharge	Staphylococcus	1
	Throat-swab	Staphylococcus	1
	Culture	Staphylococcus	1
	Pus and Blood from Gum	Streptococcus	1
	Pus (Epiphysites case)	Streptococcus	1
	Blood	Streptococcus	2
	Discharge from Uterus	Streptococcus	2
	Sputum	Streptococcus	6
	Urine	Coliform Bacillus	8
	Uterine Discharge	Coliform Bacillus	1
	Vaginal Discharge	Coliform Bacillus	1
	Discharge from Ear	Coliform Bacillus	1
	Discharge from Uterus	Coliform Bacillus	1
	Discharge from Eye	Coliform Bacillus	1
	Mucus (Colitis case)	Coliform Bacillus	1
	Cultures	Coliform Bacillus	1
	Fæces	Coliform Bacillus	1
	Pus from Nose	Diphtheroid Bacillus	1
	Pus from Eye	Diphtheroid Bacillus	5
	Pus (Empyema Case)	Diphtheroid Bacillus	1
	Discharge from Ear	Diphtheroid Bacillus	1
	Swab	Diphtheroid Bacillus	1
	Discharge from Ear	Bac. Pyocyaneus	1
	Discharge from Nose	Bac. Pyocyaneus	2
	Pus from Empyema Case	Bac. Pyocyaneus	1
	Cultures from Septic Throat	Staph. and Strepto. mixed	1
	Discharge from Nose	Mic. Catarrhalis	2
	Sputum	Mic. Catarrhalis	1
	Sputum	Friedlander Bacillus	2
	Sputum	Mixed Organisms	1
	Blood and Lymph	Short Bacillus	1
	Carried forward	..	26,140

Disease Suspected.	Nature of Specimen.	No.	Positive.
	Brought forward	26,140	..
Miscellaneous	Water, quality and quantity examinations	86	..
	Urine, general examination	4	..
	Urine, for Pus	5	..
	Urine, for Casts	17	..
	Urine, for Bacteria	2	..
	Urine, for Organisms	1	..
	Urine, Coli bacillus	1	..
	Urine Secretions, for Fermentation Test	1	..
	Pus, for Organisms	1	..
	Pus, for Bacteria	1	..
	Swab, for Organisms	1	..
	Blood, for Erythrocyte Count	2	..
	Blood, for Leucocyte Count	1	..
	Blood, general examination	1	..
	Disinfectants	9	..
	Foods	17	..
	Filters	12	..
	Hansa Filter Candles	3	..
	Sundry Examination	13	..
	Total	26,318	..

JOHN J. HARRIS, Director.

APPENDIX D.

REPORT OF THE MEDICAL OFFICER IN CHARGE, DISPENSARY FOR ENTHETIC DISEASES, BRISBANE.

Brisbane,

SIR,—I beg to submit a report on the work done at the Dispensary for Enthetic Diseases, Brisbane, during the months of April, May, and June, 1913.

The total attendance of out-patients has been 240.

New Cases—		
Syphilis—Male	14	
Female	3	
	—	17
Gonorrhœa—Male	61	
Female	6	
	—	67
		—
Total new cases		84

Several of the cases of syphilis were sent to the wards of the Brisbane Hospital for treatment by Neo-Salvarsan, with apparently very satisfactory results, and a few cases of gonorrhœa with complications were also admitted for treatment.

I think it will be of great advantage to the successful working of the Dispensary when the ward for the treatment of severe cases is finished, as at present I lose sight of many of the most interesting cases after admission to the hospital.

With regard to the source of infection, the following figures are of some interest.

These apply only to the Brisbane area, and also only to those who were willing or able to state the source of infection.

Syphilis—Prostitutes	1
Others	5
Gonorrhœa—Prostitutes	17
Others	25

In this report I have applied the term "prostitute" to all those women who have received payment, whether residing in a recognised "house" or not.

During the months mentioned, eleven (11) females and one (1) male, suspected of suffering from venereal disease, were sent to the Dispensary for examination, and were duly reported on by me.

My thanks are due to Dr. Harris, of the Department of Microbiology and Pathology, for his promptness and courtesy in carrying out the tests for the Wassermann reaction, and for examination of Gonococci in suspected cases.

Yours faithfully,
G. P. DIXON, M.B., CH.M.,
Medical Officer in Charge of Dispensary for Enthetic Diseases.

The Commissioner of Public Health, Brisbane.

APPENDIX E.

REPORT OF THE GOVERNMENT ANALYST.

Government Chemical Laboratory,
Brisbane, 4th August, 1913.

SIR,—I have the honour, in accordance with section 31 of "*The Health Act of* 1900," to submit the following report of work done in the Government Chemical Laboratory for the Health Department during the year 1912-13. The number of samples examined during the year was 1,231, involving 9,796 determinations, an increase on the previous year of 632 samples and 5,859 determinations. For the last six months of the year the increase was very marked, the number of food samples alone reported upon in that period being 740, a larger number than the total in any previous twelve months.

The following is a summary of the work done during the year:—

——	Samples.	Determinations.
Arrowroot	9	36
Baking Powder	1	6
Beer	36	296
Beverages and Cordials	39	446
Brandy	2	24
Bread	9	72
Butter	14	172
Cocoa	4	48
Coffee	3	24
Confectionery	7	42
Cream	2	12
Cream of Tartar	16	33
Custard Powder, &c.	5	40
Disinfectants (liquid)	2	12
Essences	30	134

—	Samples.	Determinations.
Fish (fresh)	6	32
Fish (tinned)	28	160
Flours	4	20
Ginger	2	8
Honey	1	8
Ice Cream	20	196
Jam and Jellies	13	86
Lard	6	60
Milk (condensed)	56	336
Milk (fresh) Legal	419	4,384
Milk, Miscellaneous .. .	16	128
Mincemeat	5	40
Miscellaneous	30	282
Oils (essential)	3	24
Oils (vegetable)	3	24
Peas	10	54
Pepper	9	90
Pickles	1	12
Preservatives	5	30
Rum	2	16
Sauce	16	128
Snake Bite Cure	3	30
Sunlight Investigation ..	269	817
Urine	1	2
Vinegar	2	20
Water	19	184
Water (Water and Sewerage Board) ..	82	984
Whisky	21	244
	1,231	9,796

As in the previous year, the greatest increase was in the number of milk samples examined. Of the 419 legal samples of milk examined, 60 failed to pass the legal minimum standard. The samples adulterated with water numbered 52, equivalent to 12.4 per cent. of the total. The proportion of added water in these 52 samples varied from 2 to 50 per cent.; the fat from 2.3 to 4.8 per cent.; and the solids not fat from 4.7 to 8.5 per cent. The remaining 8 samples were deficient only in butter-fat, the proportion of fat present ranging from 1.9 per cent. to 3.1 per cent.

The following table gives a general index of the state of the milk trade, viewed from the analyst's standpoint:—

Year.	MILK SAMPLES.		Per cent. Failed.	Average per cent. of added Water.
	Total.	Failed.		
1907-1908 ..	66	37	56	8·7
1908-1909 ..	158	64	40	10·0
1909-1910 ..	78	19	24	8·3
1910-1911 ..	122	28	23	7·9
1911-1912 ..	265	69	26	12·0
1912-1913 ..	419	60	14	14·0

MILK PROSECUTIONS FOR 1912-1913.

Number.	Fines.	Costs.	Total.
	£ s. d.	£ s. d.	£ s. d.
48 ..	396 12 2	56 6 0	452 18 2

There is a very marked falling off in the proportion of adulterated samples found, though those milk dealers who are still adding water seem to be adding slightly more than before, as the average proportion in the adulterated samples has risen from 12 per cent. to 14 per cent.

It might be of interest to state, as in previous reports, the financial aspect of milk adulteration. Taking 2,000,000 gallons as approximately the metropolitan annual supply, then the adulterated samples found during the year represent 240,000 gallons of adulterated milk sold, containing nearly 34,000 gallons of added water. This water, at 5d. per quart, represents over £2,800, while the fines and costs in the Metropolitan Area amounted to less than £440. There is, therefore, still a very good financial margin in favour of the dealer who waters milk.

A sample of dirty milk was received containing 11 grains per gallon of dirt, consisting of manure, animal hairs, and epidermal scales. A successful prosecution was instituted against the vendor of this milk. Ordinary clean milk will not show more than one-fourth of a grain to the gallon of dry dirt. Most authorities recommend that when the quantity exceeds 1 grain to the gallon, prosecution ought to follow.

The average composition of the samples of milk which passed the legal minimum standard during the last two years was as follows:—

	1911-1912.	1912-1913.
Total solids	12·6 ..	12·7
Fat	3·9 ..	4·0
Solids not fat	8·7 ..	8·7

Of the non-legal samples of milk received one was "red milk," the colour being due to the presence of chromogenetic bacteria. The blue colour of another sample was caused by ultramarine, the colouring matter of ordinary laundry blue.

Two samples of "Glaxo" (dried milk) were analysed with the following results:—

—	1.	2.
Moisture	2·13	5·0
Butter Fat	27·50	26·2
Milk Sugar	36·31	36·7
Proteids	28·0	26·3
Ash	6·06	5·8
	100·00	100·0

Fifty-six samples of condensed milk were submitted for analysis, most of them because of doubt as to their quality. Of these, four were decomposing and unfit for human consumption. Although the remainder of the samples passed the standard for milk constituents, they were mostly affected with a complaint peculiar to condensed milk. This complaint is indicated by the presence of brown-coloured cheesy lumps starting from and attached to the side or top of the tin. In time the complaint runs completely through the mass, rendering it solid, brown in colour, and cheesy in odour. I failed to isolate any fungoid growths from these samples. The labelling on one brand of this faulty milk was such as to convey to the purchaser the idea that the milk was specially suitable for the nursery.

Nine samples of arrowroot were of the Queensland variety (*tous les mois*). They were clean and fit for human consumption.

Only one sample of draught beer out of 36 samples received was free from preservative, the remainder containing either sulphite compounds or salicylic acid. According to the chlorine content, the samples may be divided into five groups representing presumably the output from as many breweries. The following table shows the average analysis of each division:—

No.	Proof Spirit.	Total Solids.	Ash.	Chlorine as sodium chloride (grains per gallon.)	Acidity. N. soda 10 per cent.	Sulphur dioxide.	Salicylic acid.
1	10·5	3·5	0·14	24·5	15·4	present	absent
2	11·0	3·4	0·15	37·1	18·1	present	absent
3	8·0	4·7	0·13	38·0	14·0	absent	present
4	10·0	3·3	0·17	45·6	16·5	absent	present
5	10·0	3·0	0·18	54·6	17·2	absent	present

The beers were of the light "sugar and malt" type. The chlorine content is not excessive, most of it being added to the water in the form of calcium, magnesium or sodium chlorides, in order to render it more suitable for brewing purposes. There should be no necessity to add preservatives to beer of the above quality, provided the beer is brewed under hygienic conditions and kept in cool, clean cellars.

Of 39 samples of beverages and cordials, 15 were samples of lemon squash. None of these were up to the standard, the adulteration in each case being due to added water, the amount added varying from 24 to 60 per cent. The preservatives present were sulphite compounds. Three samples of cordials were infested with fungoid growths and were condemned. The remaining 21 samples fulfilled the requirements of the standard.

The moisture in the 9 samples of bread reported upon ranged from 35 to 41. They were all free from adulteration.

Of fourteen samples of butter examined, 13 conformed to the standard. One sample marked "pure Irish butter" failed to pass. The genuine samples gave the following results on analysis:—

—	1	2	3	4	5	6	7	8	9	10	11	12	13
Moisture	13 7	11·8	14·3	8·0	13·1	10·0	12·6	10·0	10·5	12·2	14·5	11 0	12·0
Butter Fat	84·7	86·1	84·0	88·7	84·8	87·7	83·4	86·9	86·8	84·8	82·7	85·8	84·9
MilkS olids (other than fat)	1 0	1·1	0·7	1·5	1·1	1·5	1·4	2·0	1·8	1·6	1·3	1·8	1·7
Ash	0·6	1·0	1·0	1·8	1·4	0·8	2·6	1·1	0·9	1·4	1·5	1·4	1·4
	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0
FAT RESULTS.													
Reichert Meissl Number	26·0	28·0	25·2	28·6	25·3	29·7	27·0	28·0	28·0	27·0	27·0	27·0	28·0
Butyro-Refractometer reading at 40°C	41·5	42·6	42·7	42·2	42·4	42·0	42·0	43·0	43·0	42·0	43·0	42·0	41·0

Three of the samples contained traces (less than ·5 grain to the pound) of boric acid, the others being free from preservatives. The small proportion of preservative found in the three samples is evidently only adventitious, probably resulting from some of the cream used in the manufacture of the butter having had boric acid added to it. The proportion present in these cases could have had no preservative action whatever. In face of the oft-repeated contention that good marketable butter cannot be made in our climate without at least 35 grains of boric acid to the pound (the maximum permitted by law), it is rather remarkable that of the 14 samples tested during the year, not one was preservatised. It shows clearly that a fair proportion of the butter factories have found that they can manufacture first-class butter by using care and cleanliness instead of preservatives.

Four samples of cocoa and 3 samples of coffee passed the standard. The cocoas were alkali prepared, the total alkali calculated as potassium carbonate being 3.0 per cent.

Of 7 samples of confectionery examined, all passed.

One sample of cream was below standard, the other was decomposing.

All of the cream of tartar samples passed the standard.

The 30 samples of essences, according to the labelling, were made up as follows:—

Lemon Essence.	Terpeneless Lemon Essence.	Vanilla Essence.	Pineapple Essence.
16	6	7	1

Lemon essence, according to the standard, shall contain not less than 5 parts per centum by volume of oil of lemon. Only 4 out of 16 samples passed this low standard; 7 samples were merely flavoured with citral, the remaining 5 samples containing a trace to 4.3 per cent. of oil of lemon. One sample of imported essence contained 20 per cent. by volume of genuine oil of lemon, while another locally made contained 14.6 per cent. by volume. All the terpeneless essences passed the standard.

Three samples of vanilla essence contained only traces of the extractives from vanilla beans. The other 4 samples were genuine.

Six samples of fish, alleged by the owners to be fresh, were received for inspection. Five samples were decomposing, and the stocks represented were consequently condemned. One sample was fresh and free from preservatives.

Of 28 samples of tinned fish submitted as of doubtful quality, 14 samples were condemned as being unfit for human consumption. One tin labelled " Roes " contained semi-cooked fish, partly decomposed and in a state of liquefaction.

Of 20 samples of ice cream examined, 11 failed to pass the standard, the milk fat ranging from 3.4 to 8.4 per cent., the standard requiring 10 per cent. Nine samples contained from 10 to 15 per cent. of milk fat.

Three samples of jam were fermenting and unfit for human consumption. Ten samples were up to the standard.

The 6 samples of lard received were genuine.

The samples of minced meat and sausages were preserved with sulphite compounds, the amount calculated as sulphur dioxide ranging from 2 to 6.6 grains to the pound.

One sample of " bakers oil " consisted of animal and vegetable oil, and two samples of oil labelled respectively " salad " and " sublime salad " proved to be cotton-seed oil. One sample of camphorated oil was 80 per cent. deficient in camphor, and cotton-seed oil had been substituted for the olive oil which should have been present.

Seven samples of dried peas submitted as of doubtful quality were found to be infested with fungoid growths. The remaining 3 samples were fit for human consumption.

Nine samples of pepper examined were genuine and easily conformed to the standard. The following is a list of the results obtained from them :—

Ash.	Ether Extract.	Alcohol Extract.
1·2	8·8	8·4
1·2	8·5	8·0
1·1	8·2	8·0
1·3	8·4	8·8
1·2	8·4	8·0
1·2	7·5	8·2
1·5	7·7	9·4
1·1	8·5	9·6
1·2	9·2	10·0

Twenty-five spirituous liquors were examined, viz. :—

Whisky	21 samples
Rum	2 samples
Brandy	2 samples

Fourteen samples of whisky were adulterated with water and 7 samples were genuine. One sample of brandy was watered and the other was up to standard. Both samples of rum were genuine, and were respectively 20 per cent. under proof and 31 per cent. over proof.

Four samples of Queensland wine examined were genuine, and gave the following results on analysis :—

—	Port.	Red Hermitage.	Port.	Port.
Proof Spirit	27·8	30·2	24·3	28·6
Extract (grammes per 100 c.c.)	7·1	8·6	15·0	9·7
Ash (grammes per 100 c.c.)	0·3	0·36	0·2	0·6
Fixed Acid (as tartaric) (grammes per 100 c.c.)	0·36	0·4	0·44	0 5
Volatile acid (as acetic) (grammes per 100 c.c.)	0·05	0·036	0·08	0·1
Sulphuric anhydride (grammes per 100 c.c.)	0·05	0·06	0·04	0·05
Chlorides	0·018	0·018	0·3	0·035
Glycerin	below 0·25	below 0·25	below 0·25	below 0·25
Polarisation (200°M.M.) direct	8·7	14·7	17·0	14·1
Polarisation (200°M.M.) invert	8·9	14·8	17·4	14·4
Preservatives	Nil	Nil	Nil	Nil
Artificial Colouring	Nil	Nil	Nil	Nil

MISCELLANEOUS.—Of 5 chewing-gums received, two contained paraffin and three gum chicle as the chewing base. Three samples of snake bite cure were of the usual strychnine variety. One sample of honey was up to the standard; also one sample of baking-powder. The preservatives received were sulphite compounds. The flours were cornflours, and consisted of maize starch only. One sample of Japanese ginger was genuine. Two vinegars failed to pass the standard. Of 16 samples of sauces examined 14 were passed as genuine; 2 were artificially coloured. Other miscellaneous substances examined included samples of caramel, rubber hose pipe, leather nuclein, glycerine, consumption cure, tonic, fruit can, pick-me-up, milk tester, and fly-killer.

SUNLIGHT.—In connection with the international sunlight survey, the intensity of the sunlight has been measured for the three hours, 9 to 12 a.m., during every working day since July last year. A solution sensitive to light but not to heat is exposed every forenoon on the top of the building here, and the resulting change in the solution measured by titration. The number of cubic centimeters of solution used is a measure of the intensity of the sunlight. The maximum for each month during the year was as follows :—

1912.		1913.	
August	21·6	January	23·3
September	22·7	February	23·8
October	22·6	March	22·9
November	23·1	April	22·5
December	23·1	May	21·2
		June	19·7

The average for each month is, when compared with the maximum, of course a measure of the amount of cloud, and is as follows:—

1912.		1913.	
August	18·2	January	17·3
September	20·9	February	15·0
October	18·6	March	19·3
November	18·9	April	17·6
December	19·8	May	14·5
		June	14·0

Of the water samples analysed, 9 were domestic supplies, of which 1 was passed, 6 were found to be of doubtful composition, and 2 samples were condemned. Four samples of tank water were found, as usual, to contain zinc; 4 of a town supply were tested for purification by the addition of chlorine, and 1 sample of well water was found to contain traces of arsenic.

The large increase in the work for the Health Department during the latter half of the year was only overtaken by putting an undue strain on the assistant doing the principal part of the foods work, and also by putting part of the increased burden on other assistants whose time was already fully occupied with the work of other Departments. Provision has now been made for the appointment of another assistant specially trained in food and drug analysis, and an additional laboratory bench is being added to the foods room.

To get anything like adequate protection from adulteration of food products, it has been found in Europe that at least 3 samples of food per 1,000 should be analysed annually. A sufficient number of food inspectors have now been appointed to insure that that minimum proportion of samples could be taken in Queensland, but the samples, if taken, could not be analysed unless still further laboratory assistance and accommodation were provided. If the new laboratory building is constructed, for which plans are now being prepared, there will be accommodation for doing this most important health work, and assistance can then be obtained as required.

I have, &c.,

J. BROWNLIE HENDERSON,
Government Analyst.

The Commissioner of Public Health, Brisbane.

APPENDIX E 1.

REPORT ON "MOSSMAN FEVER."

BY DR. P. S. CLARKE, MB., Ch.M. (SYD.), F.R.C.S. (EDIN.), PORT DOUGLAS, NORTH QUEENSLAND.

Definition.

An endemic disease characterised by continued fever of about 21 days' duration, with pain in the head, back, and legs, and enlargement of the superficial lymphatic glands.

Distribution.

The disease prevails between the coastal range of mountains and the sea, in the Mossman district, within a limited area extending approximately 18 miles to the south and 30 miles to the north of the township of Mossman. Isolated cases occur outside the boundaries of this area—*e.g.*, during 1907 one case occurred 26 miles inland from Mossman, and during 1911 another arose 60 miles to the north of that township.

Historical Note.

White men first settled in the Mossman district in the year 1877. These were chiefly engaged in the timber industry on the banks of the Daintree River, about 12 miles to the north of Mossman. The survivors of these early settlers state that, shortly after their arrival in the district, cases of sickness occurred amongst them characterised by continuous fever lasting for several weeks, accompanied by swellings in the armpits and groin. They observed a similar disease amongst the aboriginal inhabitants.

From a careful consideration of the disease described by the old settlers, I have come to the conclusion that they suffered from what is now known as "Mossman fever," and that this disease existed, prior to their advent, amongst the aborigines in the district.

There are no available statistics dealing with the death rate from fever in the early years of settlement. The survivors state that there was a high rate of mortality from the fever, but it is difficult to ascertain whether this was due to the virulence of the complaint or to the remedies resorted to for its cure. One old settler informed me that his favourite "fever cure" was made by boiling a mixture of beer, rum, Epsom salts, and quinine.

Nomenclature.

At various times in the history of this disease, it has been known locally as "scrub fever," "low fever," "continuous malarial fever," and "filarial fever." I think that, until some definite etiological factor is discovered, the name "Mossman fever" is the most suitable, since, with the exception of a few isolated cases, I do not know of the occurrence of this disease outside the Mossman district.

The term "scrub fever" is applied to totally dissimilar febrile complaints occurring in other districts of North Queensland.

"Low fever" does not appear to be an appropriate name for a complaint in which the temperature rises in some cases above 105 degrees. The term "continuous malarial fever" should not be applied to a disease in which the malarial parasite is not present in the blood. Accurate investigations have not yet been made to estimate the percentage of apparently healthy persons in the Mossman district who harbour microfilariæ in their blood. These parasites can be demonstrated in the blood of less than 25 per cent. of those who suffer from Mossman fever. The usual effects of filariasis—such as elephantiasis, lymph scrotum, and chyluria—are not present in cases of Mossman fever. During the last five years, I have observed only one case of chyluria in this district, and that occurred in a patient not suffering from Mossman fever.

Etiology.

The disease affects persons of any age. Amongst 1,482 cases of Mossman fever treated by me, my youngest patient was aged 3 months and my oldest 76 years.

It attacks either sex.

There is no racial immunity. Europeans and Asiatics, Pacific Islanders and aborigines, appear to be equally liable to contract the complaint. As a rule, acclimatised persons get milder attacks than new arrivals in the district.

One attack apparently confers a certain degree of immunity for about a year. I have, however, known a second attack to occur 10 days after the first. In one case a patient had 4 severe attacks with intervals of normal temperature averaging about 10 days between the attacks. Attacks at yearly intervals are fairly common.

The fever occurs at all seasons of the year. Comparatively few cases arise amongst the residents of Mossman township. The workers in the surrounding canefields are especially liable to contract the disease, and the number of cases arising varies directly with the number of field workers in the district. Cane camps situated at low levels, and protected from wind by surrounding hills or vegetation, give rise to more fever cases than those on higher ground in more exposed situations.

Apparently Mossman fever is not a waterborne disease. On one cane farm, where many cases of fever arise, the labourers obtain their drinking water from the Mossman River a mile below the township of Mossman. Many of the residents of Mossman obtain their drinking water, during several months of each year, from the same source, and yet few of them contract the fever.

The food supply does not appear to have any influence on the incidence of the fever. In many instances the food of the cane farmer is cooked in the same kitchen and by the same cook as that of the cane cutter, and yet comparatively few of the cane farmers contract the disease.

Mossman fever does not appear to be contagious or infectious. Most of the fever cases are treated in the Port Douglas District Hospital, and in no instance has a hospital nurse or other attendant contracted the disease. Amongst the untrained attendants on Mossman fever cases in private houses, I have not known one to contract the disease from the patient.

When one reviews the conditions under which Mossman fever arises, and considers the probability, almost amounting to a certainty, that it is not contagious or infectious, that its incidence is not affected by the food or drink taken, and that it occurs chiefly amongst cane cutters, who, as a rule, do not sleep under mosquito nets, and who live mostly in low-lying, sheltered situations eminently favourable to the development and activity of insect life, it seems probable that Mossman fever is due to a micro-organism conveyed from man to man by an intermediate host, the latter being possibly some variety of mosquito or sand fly.

Symptomatology.

The latent period between the reception of infection and the onset of symptoms is probably of about six days' duration. Cases such as the following are of not uncommon occurrence:—H.T. arrived from Brisbane and started work on a cane farm; 6 days afterwards he developed symptoms of Mossman fever. J.M., living in a healthy locality outside the fever zone, spent one night on a cane farm, returning to his home the following morning; on the 6th day after his return he began to feel out of sorts, and 2 days afterwards he was laid up with Mossman fever.

The onset is, as a rule, gradual. For a few days, in some cases even as long as 8 days, preceding the onset of pyrexia, the patient suffers from a feeling of malaise with diminished appetite. Occasionally slight attacks of vertigo occur. In this stage some enlargement of the superficial lymphatic glands may be observed. As the disease develops, it assumes one of the following types:—(1) Restless. (2) Drowsy. (3) Chronic.

(1)—*Restless Type.*

In the restless type of Mossman fever, comprising about 92 per cent. of all cases, the temperature gradually rises, sometimes with a feeling of chilliness but rarely a rigor, during successive days until it attains a maximum height of from 102 degrees to 105 degrees on or about the 10th day. The highest recorded temperature registered 105·6 degrees. The temperature in the evening is usually from 1 degree to 3 degrees higher than in the morning.

Headache is present, with aching pain, often severe in character, in the back and legs; 20 per cent. of the cases complain of a constant dull, aching pain in the epigastrium.

Vomiting, chiefly of bile-stained fluid, is apt to occur in such cases at any time during the day or night.

The superficial lymphatic glands, especially in the axilla and groin, are enlarged. It is not uncommon to find one of these glands as large as a walnut. There is usually neither pain nor tenderness in the enlarged glands, but occasionally they are both tender and painful. Abscess formation never occurs in the enlarged glands.

The patient is both irritable and restless. In many cases he cannot sleep without the aid of sedatives. Nocturnal delirium may be present, but more commonly troublesome nightmares disturb the patient. In severe cases the delirium is continuous. In young children convulsions may arise.

Occasionally muscular twitchings occur. In a few cases I observed paresis of the soft palate.

There is marked anorexia with an unpleasant taste in the mouth. The tongue is tremulous and coated on the dorsum—at first yellowish white in colour, and later may become dark brown. There may be congestion of the pharynx with pain on deglutition. The abdomen is not distended. There is no enlargement of the liver or spleen. Constipation is the rule, but occasionally a troublesome diarrhœa occurs. There is no hæmorrhage from the stomach or intestine.

There is loss of weight at the rate of about 10 lb. per week.

Bronchitis, resembling in its characters ordinary acute bronchitis, occurs in about 35 per cent. of the cases. Pneumonia is a rare complication.

Profuse perspiration occurs at frequent intervals; in one case the pyjama suit of the patient had to be changed 15 times during one night on account of this symptom. In severe cases cutaneous hyperæsthesia may occur. In 30 per cent. of the cases a blotchy, raw ham-coloured, erythematous rash occurs over the face, chest, and arms, and sometimes over the abdomen. The macules are slightly raised above the surface of the surrounding skin, and may become confluent. The rash fades after 4 or 5 days, and disappears without the occurrence of desquamation. In the majority of cases of Mossman fever, a peculiar, disagreeable, penetrating odour is given off from the skin of the patient. It may be noticed at a distance of several feet from the patient. It somewhat resembles the odour emanating from a clothes basket filled with clothes that have been soaked in perspiration. This odour is so characteristic and penetrating in some cases that I know what is affecting the patient as soon as he approaches me in my consulting-room.

Cardiac complications do not arise in Mossman fever. Pre-existing valvular disease, with good compensation established, does not materially affect the prognosis; 14 such cases were treated, and all recovered. The pulse has the ordinary febrile characters. The pulse rate is not markedly increased, as a rule; it usually does not count above 110 to the minute, even with the temperature raised to 104 degrees, and frequently it does not rise above 100 to the minute throughout the course of the disease. Anæmia is not a marked symptom of the disease.

The urine is of the ordinary febrile character.

In about 8 per cent. of the cases marked deafness occurs, usually when the fever is at its maximum. In these cases the hearing becomes normal during convalescence.

Ocular symptoms are present in 25 per cent. of the cases. There is conjunctival congestion and photophobia, the latter being due probably to retinal irritation, as iritis does not occur.

The osseous system is unaffected; in rare cases the patients complain of pains in the bones of the legs towards the termination of the fever.

In patients previously infected with malaria, malarial symptoms are apt to occur at any time during the course of the disease.

In unfavourable cases, the high temperature persists, the delirious patient passes gradually into a state of coma, with rapid feeble pulse and cold perspiration, and finally death ensues from cardiac failure.

In favourable cases, from the 10th day after the onset of pyrexia, as a rule, a gradual abatement of symptoms takes place until, at the end of the 3rd week from the onset, convalescence is established. The patient usually recovers his strength rapidly during convalescence. Many of these patients resume work 10 days after the termination of the fever. The enlarged lymphatic glands quickly diminish to their normal size in most cases, but occasionally some enlargement persists for several months after the termination of the fever.

(2)—*Drowsy Type.*

When it assumes this form, the disease is usually of a drowsy type from the onset, but occasionally the drowsy symptoms supervene during an attack of the restless type.

The symptoms in general resemble those of the restless type, with the following exceptions:—After an initial headache, often of distressing severity for a few hours, practically all symptoms of pain cease. The patient becomes drowsy and depressed, and he loses all interest in his surroundings. He is easily aroused to take food or medicine. The perspiration is not so profuse as in the restless type, but the characteristic odour of the disease is more noticeable. Although the patient in the early stage takes his food well, he loses weight rapidly. The tongue is very dry and rapidly becomes coated of a deep brown, almost black, colour. There are frequently marked twitchings of the voluntary muscles. The superficial lymphatic glands are more enlarged than in the restless type of the disease. Nystagmus may develop late in the complaint. During the 2nd week after the onset of pyrexia, the drowsiness may deepen into coma and a fatal issue rapidly ensue. A sudden fall to subnormal followed by a rapid rise of the temperature to 103 degrees or even higher may take place towards the termination of the disease.

In general appearance, the patient resembles one with typhoid fever, but there is no distension or tenderness of the abdomen; the characteristic typhoid rash does not develop; the spleen is not enlarged; tympanites, perforation, and hæmorrhage do not occur. In 53 cases of the drowsy type, 8 of the patients had previously suffered from typhoid fever. In one instance the patient had a severe attack of typhoid fever three months before the onset of the drowsy type of Mossman fever. I have not succeeded in obtaining a *post-mortem* examination of any of the fatal cases, and the Widal test has not been applied in differential diagnosis; but from careful observation of the clinical symptoms of these patients, I am convinced that the disease is not typhoid fever.

(3)—*Chronic Type.*

In the chronic type the symptoms resemble in a mild degree those of the acute restless form of the disease. From a little above normal or even from subnormal in the morning, the temperature rises gradually during the day, until in the evening it registers from 99 degrees to 100·6 degrees. There are enlarged superficial lymphatic glands, with malaise, headache, diminished appetitie, loss of weight, muscular weakness, and insomnia. These symptoms may persist for 3 months or even for a longer period.

Relapses may occur in any type of Mossman fever.

DIAGNOSIS.

On account of its limited geographical distribution and its endemic character, the diagnosis of Mossman fever usually presents no difficulties. It has been mistaken for typhoid fever and for bubonic plague, but may readily be differentiated from these diseases by careful clinical and bacteriological examinations.

PROGNOSIS.

The prognosis in most cases is good. During the last five years 1,482 cases have been treated in hospital and private practice with a mortality of less than 1 per cent. In drowsy cases and in cases of the restless type with very severe and persistent headache, the prognosis should be guarded.

PROPHYLAXIS.

It is probable that if the cane cutters' camps were located on higher levels, and if the men could be induced to use fine-meshed mosquito nets at night, the number of cases of Mossman fever would be materially diminished.

TREATMENT.

On account of the small number of medical practitioners who have come in contact with cases of this disease, no settled plan of treatment has been devised. In the absence of knowledge of the causative factor, the treatment is mainly symptomatic.

If the case is seen before the pyrexia has developed, I advise rest in bed, a light diet, and, if indicated, a purgative. A mixture containing strychnine and compound infusion of gentian is given before meals. In about 8 per cent. of the cases this treatment apparently has the effect of aborting the disease.

With the onset of pyrexia, rest in bed is of the utmost importance. In many cases, the onset of the disease is so gradual, and the symptoms so slight, that it is difficult to persuade the patients to lie up. Some of the most severe attacks of the disease have developed in patients who tried to " work off the fever." I have frequently had a man consult me stating that he " felt a bit off colour and thought he wanted a tonic," and on examination found him to be suffering from Mossman fever with a temperature of 101 degrees.

A milk diet is ordered, with purgation if necessary every 2nd day, cold sponging in the morning and evening, and a diuretic and diaphoretic mixture containing liq. ammon. acet. and spr. aetheris nitrosi.

For severe pain in the head, back, or legs, phenacetin and citrate of caffeine are given. Sometimes the pain in the back is much relieved by a hot-water bag applied over the spine. If the enlarged lymphatic glands are painful, belladonna liniment usually gives relief. If the pulse rate rises above 110 to the minute, strychnine is given with the fever mixture. If the temperature rises above 103 degrees, cold sponging is ordered. Carbonate of bismuth internally, with the local application of a hot-water bag, usually relieves the epigastric pain; if the pain persists, a little syrup of codeina is given with the bismuth. For insomnia, liq. morphinæ hydrochlor. and tinct. belladonna are given.

If malaria complicates the case, quinine is ordered; otherwise quinine does not have beneficial effect during an attack of Mossman fever.

I cannot urge too strongly the importance of early stimulation with strychnine in combination with digitalis or strophanthus in the drowsy type of the disease.

Even with a pulse rate not above 80 to the minute and a temperature below 100 degrees, if the patient is drowsy, stimulating drugs should be prescribed. Sometimes moderate doses of alcohol do good in these cases, especially if the tongue is very dry and the sudoriparous glands are not acting freely. Depressing drugs, such as salicylate of sodium, have very bad effects on cases of the drowsy type.

If troublesome bronchitis arises, it is treated with the usual remedies. In conditions of collapse, alcohol and hypodermic injections of strychnine are useful. It does not matter how enfeebled the patient may become, the practitioner need not lose hope of a favourable termination of the case. I have known several patients, apparently *in articulo mortis,* to gradually rally and eventually recover from the complaint.

In convalescence tonics are useful. After the temperature has returned to normal, the patient may usually be allowed to sit up on the 3rd day, and gentle exercise may be taken on the 7th day. In the chronic variety of Mossman fever, I have tried the effect of numerous drugs, but I cannot credit any of them with the slightest influence in limiting the duration of the disease. I have known a change to a cooler climate to do good in such cases.

The Commissioner of Public Health, Brisbane.

APPENDIX F.

REPORT OF NURSES' REGISTRATION BOARD.

Nurses' Registration Board,
Brisbane, 5th August, 1913.

Sir,—I have the honour to furnish the following information in the form of the annual report of the Nurses' Registration Board for the current year ending 30th June, 1913.

The members of the Board were formally appointed by the Governor in Council, the medical representatives in February, and the nurses in March, 1912.

The personnel of the Board consist of 3 medical practitioners, as prescribed by section 154 (1) (*a*) of "*The Health Acts,* 1900 *to* 1911"—namely, Drs. A. C. F. Halford, J. B. McLean, Medical Superintendent of the Brisbane General Hospital, and H. B. Ellerton, Inspector of Hospitals for the Insane, who was selected by the Government to fulfil the requirements of section 154 (1) (*c*) in respect to candidates desirous of registering as mental nurses; also two qualified nurses, as prescribed by section 154 (1) (*b*)—namely, Nurses E. L. Hunter, Matron of the Brisbane General Hospital, and F. Chatfield, Superintendent of the Diamantina Hospital, South Brisbane.

The Regulations were passed in November, 1912.

The very limited time between the passing of the Regulations in November, 1912, and the 31st December, 1912, wherein the Board could formally approve of registration without candidates having to present themselves for examination, occasioned a considerable amount of heavy work as well as the holding of numerous meetings. Subcommittees were appointed in order to deal with the applications received for registration under the various categories, and these were subsequently considered individually before being formally approved or refused.

During the period under review, as many as twenty-three formal meetings were held, as well as many others which were necessary to deal with matters of moment affecting certificates and testimonials submitted with applications from nurses who had not passed an examination but had followed the calling of a nurse for three years previous to the prescribed date, *i.e.,* 31st December 1912.

The following are the number of registrations of nurses granted by the Board under their various categories:—General, 612; midwifery, 598; mental, 112. To these may be added the following registrations made at the discretion of the Minister, as provided for by section 154E:—General, 24; midwifery, 55; making a grand total of 1,401 nurses registered by the Board up to 30th June, 1913. A list of registered nurses appeared in the *Government Gazette* of 1st February, 1913.

The total fees for registration received during the period mentioned amounted in all to £575 16s., but from this must be deducted a small amount representing fees to be returned to unsuccessful applicants. In addition to the fees received during the financial year—*i.e.,* £575 16s.—an additional sum of £160 14s. was also paid by candidates whose applications were received prior to 1st July, 1912, but which were not dealt with until the present year.

The prescribed badges for issue to nurses registered by the Board were manufactured locally at a cost of 2s. 6d. each, with an additional charge for inscribing the name to whom issued, as well as the date. A number have been issued, and it is expected that at an early date the remainder of the badges, together with the certificates, will be available for issue to the successful candidates.

The Regulations passed were found to be somewhat cumbersome, and presented administrative difficulties which necessitated several amendments, since when they appear to be in every way satisfactory.

Action is now being taken with a view to considering certain towns as examining centres as well as the appointment of examiners. With this end in view, certain hospitals, as per list hereunder, have been approved of as training schools for nurses desirous of presenting themselves for examination.

List of Recognised Hospitals.

General.

Alexandra Private Hospital, Brisbane Hospital, Bundaberg Hospital, Cairns District Hospital, Charters Towers District Hospital, Chillagoe Hospital, Clermont Hospital, Diamantina Hospital, Dalby General Hospital, Gladstone Hospital, Gympie Hospital, Hospital for Sick Children (Brisbane), "Hillcrest" Private Hospital (Rockhampton), Ingham Hospital, Ipswich Hospital, Longreach Hospital, "Leinster" Private Hospital (Rockhampton), Mater Misericordiæ Hospital (South Brisbane), Maryborough General Hospital, Mackay District Hospital, Mt. Morgan Hospital, Roma Hospital, Rockhampton Hospital, Rockhampton Children's Hospital, St. Helen's Private Hospital (South Brisbane), Townsville Hospital, Toowoomba General Hospital, Warwick Hospital.

Maternity Hospitals.

Lady Bowen Hospital, Brisbane; Women's Hospital, Rockhampton.

Mental Hospitals.

Hospital for the Insane, Goodna; Hospital for the Insane, Ipswich.

The question of acknowledging certificated nurses who have had the necessary training and who have obtained diplomas of competency by passing a recognised examination at places outside the State, has received the consideration of the Board, but on the matter being referred for legal opinion, its feasibility was found to be *ultra vires,* and as the other States are likely to pass similar legislation for the registration of trained nurses, the matter of reciprocity will be dealt with at a later date.

The clerical work, although heavy, has been satisfactorily dealt with at the hands of the secretary (Mr. Mellish), assisted by Miss Archdall as typiste. Previous to the appointment of the present secretary, a whole-time officer held the position, but in November last the duties were allotted to a part-time officer, who also holds the position of secretary to the Department of Public Health.

The remuneration paid to the latter officer is in the opinion of the Board quite inadequate, especially when the quality and the quantity of the work and the payment for same is compared with that of his predecessor and his emoluments.

Yours obediently,
A. C. F. HALFORD,
Chairman.

The Commissioner of Public Health, Brisbane.

APPENDIX G.

REPORT OF CHIEF SANITARY INSPECTOR.

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SIR,—I have the honour to submit a general brief summary of the work carried out under my supervision for the year ending 30th June, 1913.

1.—METROPOLITAN AREA.

Two thousand six hundred and sixty visits of inspection have been made within the Metropolitan Area, independent of special house to house inspections in some of the component local authorities' areas, where considerable expansion has taken place, in order to bring the sanitary survey sheets of the districts up to date. The officers of the Department still continue to work in harmony with those of the various local authorities. The sanitary circumstances of the whole area are improving. A considerable amount of work of a permanent character, in the form of sewers, cement and other water channelling, has been carried out or is in progress of completion. Since the passing of the Amended Health Act of 1911 the discharge of household wastes into unformed and other water channels has been prohibited as far as possible. The beneficial results of this is quite apparent in most of the suburban residential areas. The desire for improved sanitary conditions is evidenced by the increasing numbers of installations for the biological treatment of sewage that are yearly laid down both within the city and suburbs in anticipation of the construction of a comprehensive scheme of sewage disposal.

Numbers of comfort stations for both sexes in positions judiciously selected have recently been erected by the Brisbane City Council, thus supplying a much-felt want.

Numerous intimation of nuisance notices have been forwarded to local authorities, drawing their attention to nuisances within their areas requiring abatement.

During the early part of the year the work of food inspection was carried out as usual in conjunction with the other duties of the staff both in town and country with good results. Since the organisation of the new food staff the sanitary staff have been relieved of this duty, and will now be able to devote their whole time to sanitary matters.

The work of rat destruction is still being followed up with unabated vigour.

Since the passing of the Noxious Vermin Order of 1912, throwing the onus of keeping premises free from rats upon the owners and occupiers of property, the Department has undertaken the ratproofing of buildings in cases where the occupier or owner was unable or unwilling to have the work done by private contract, or where a satisfactory result was doubtful. Much work of a permanent nature has been carried out in ridding once and for all business and other premises from rats, whereas formerly the work only consisted of trapping or poisoning and killing the rats with dogs as the stock or other material contained in the premises was being turned over. The cost of this work is now borne by the parties concerned instead of being charged to general revenue. A considerable amount of work is on hand at present, sufficient to keep the departmental gangs employed for some considerable time.

The income from this source alone for the fiscal year amounts to the sum of £492 14s. 3d. Prior to the operation of the Noxious Vermin (Rats) Order the rat operations brought in practically no return.

2.—Other Parts of the State.

During the course of the last twelve months much useful work of an educative and practical character has been carried out in almost every part of the State. Districts have been embraced in the inspectorial sanitary surveys that have never before been visited by officers of the Department, their sanitary circumstances have been noted and recorded for future reference, and action taken as circumstances have required. The visiting officers have invariably been welcomed by the local authorities, who have expressed a desire to work in harmony with the Department. The instruction and information afforded by the officers of the headquarters staff on matters of sanitary execution have been productive of much improvement in the districts concerned. In the outbreaks of infectious disease that have occurred on some of the railway extension camps, as well as in inland towns, prompt action has always been taken, inspectors despatched to the scene of the occurrence and vigorous measures adopted to combat the outbreaks.

In a few places where governing bodies have either been apathetic or have not realised their responsibilities compulsory measures have been employed, the towns thoroughly scavenged, and sanitary matters generally placed upon a proper basis at the cost of the council.

The following *précis* of the places visited and the nature of the duty performed will, in some measure, show the thorough manner in which the work has been performed.

3.—Visits outside Metropolitan Area by Sanitary Inspecting Staff.

1912-13.	Place.	Purpose of Visit.	Inspector.
14 Dec.	Alpha	Sanitary survey : Selection of sanitary depôt	H. Burton
17-19 Apr.	Augathella	Sanitary survey	C. Cato
23-24 May	Atherton	Sanitary survey	Wm. McNeil
12 Dec.	Beenleigh	Drainage and sanitary inspections	Chief Inspector Simpson
20 Dec.	Blackall	Sanitary survey	H. Burton
1 Jan.	Burleigh Heads	Inspection of summer camping resorts	C. Cato
10 Feb.	Brassall	General sanitary inspections	Wm. McNeil
10 Feb.	Brassall	Inspection of proposed depôt	H. Burton
21-24 Feb.	Boonah	Inspection of proposed sanitary depôt : Sanitary survey	Wm. McNeil
1 March	Bundaberg	Inspection of sanitary depôt	H. Burton
29 Apr.	Blackbutt	Selecting site for sanitary depôt	H. Burton
8 May	Benarkin	Selecting site for sanitary depôt	H. Burton
10 May	Barakula	Sanitary survey	C. Cato
5 July	Clayfield	Inspection of septic tanks	Chief Inspector Simpson
5 July	Clayfield	Bread-weighing	C. Beaver
11 July	Clayfield	Bread-weighing	H. Burton
19 July	Cleveland	General sanitary inspections	S. Dudley
6 Feb.	Cleveland	Inspection of sanitary depôt	Wm. McNeil
6 Feb.	Cleveland	Inspecting sanitary depôt	S. Dudley
24 Aug.	Cooyar	Hotel inspection : Liquor sampling	H. Burton
24 Aug.	Cooyar	Hotel inspection : Liquor sampling	C. Cato
28-29 Aug.	Caboolture	Sanitary survey : Selecting sanitary depôt	S. Dudley
18 Nov.	Caboolture	Inquiry, infectious disease	C. Cato
14 Feb.	Caboolture	Inspection of piggeries : sanitary survey	H. Burton
21 Sep.	Clifton	Sanitary survey	C. Cato
27 Sep.	Cooran	Sanitary survey : Selecting sanitary depôt	H. Burton
28 Sep.	Cooroy	Sanitary survey : Inspecting sanitary depôt	H. Burton
16 Apr.	Cooroy	Inquiry, infectious disease	S. Dudley
14 Dec.	Coolangatta	Reinspecting site for sanitary depôt	C. Cato
3 Dec.	Clermont	Inquiry, diphtheria outbreak	S. Dudley
31 Dec.	Currumbin	Inspection of summer camping resort	C. Cato
8 Feb.	Coomera	Inquiry, diphtheria outbreak	S. Dudley
2-14 Apr.	Charleville	Scavenging of town	C. Cato
3-6 May	Croydon	Sanitary survey : Inspection sanitary depôt	Wm. McNeil
13-16 May	Chillagoe	Sanitary survey : Inspection sanitary depôt	Wm. McNeil
25 May	Cairns	Inquiry, malarial fever	Wm. McNeil
21 Nov.	Enoggera	Disinfection of dairy	C. Beaver
19 Aug.	Esk	Sanitary survey : Selection of sanitary depôt	H. Burton
12 Sep.	Esk	General sanitary inspection	H. Burton
24 Feb.	Emu Park	Sanitary survey	H. Burton
24 May	Einasleigh	Sanitary survey : Inspection of sanitary depôt	Wm. McNeil
21 Dec.	Forest Hill	Inquiry, typhoid outbreak	C. Cato
9-11 May	Forsayth	Sanitary survey : Inspection sanitary depôt	Wm. McNeil
6 Sep.	Goombungee	General inspection : Selecting sanitary depôt	H. Burton
19 Sep.	Greenmount	Selecting sanitary depôt	C. Cato
20 Nov.	Gowrie	Drainage inspection : Garbage disposal	H. Burton
3 Mar.	Gin Gin	Sanitary survey : Selecting sanitary depôt	H. Burton
5 Mar.	Granville	Sanitary survey : Selecting sanitary depôt	H. Burton
8 May	Georgetown	Sanitary survey	Wm. McNeil
8 May	Golden Gate	Sanitary survey	Wm. McNeil
21-23 May	Herberton	Sanitary survey	Wm. McNeil
26 Nov.	Ipswich	Drainage inspection : Garbage disposal	C. Beaver
18 Dec.	Jericho	Sanitary survey	H. Burton

3.—VISITS OUTSIDE METROPOLITAN AREA BY SANITARY INSPECTING STAFF—*continued.*

1912-13.	Place.	Purpose of Visit.	Inspector.
27 Aug.	Kedron	Inspection of sanitary depot	C. Beaver
17 Sep.	Kingaroy	Sanitary survey	H. Burton
10 Dec.	Kingaroy	Inquiry, diphtheria outbreak	H. Burton
6 Mar.	Kingaroy	Drainage inspection : Sanitary survey	H. Burton
24 Sep.	Killarney	Sanitary survey	C. Cato
19 Dec.	Kingston	Mosquito survey	C. Beaver
21 Dec.	Koongal	Inspection of slaughter-yards	Chief Inspector Simpson
1 July	Kuranda	Sanitary survey	Wm. McNeil
3 Dec.	Laidley	Sanitary survey	C. Beaver
8 May	Morningside	Drainage inspection	C. Cato
22 Aug.	Miles	Sanitary survey : Selection of sanitary depôt	S. Dudley
23 Aug.	Moore	Sanitary survey : Selection of sanitary depôt	H. Burton
23 Sep.	Memerambi	Sanitary survey : Selection of sanitary depôt	H. Burton
20 Dec.	Merimbera	Inspection of sanitary depôt	Chief Inspector Simpson
26 Feb.	Mount Chalmers	Sanitary survey	H. Burton
13 Mar.	Mingon	General sanitary inspection	H. Burton
23-27 Apr.	Many Peaks	Inquiry, infectious disease outbreak	S. Dudley
21-22 Apr.	Morven	Sanitary survey	C. Cato
24 Apr.	Mitchell	Sanitary survey	C. Cato
17-19 May	Mareeba	Sanitary survey	Wm. McNeil
11-14 June	Maryborough	Sanitary survey	S. Dudley
3 July	Mossman	Sanitary survey	Wm. McNeil
13 July	Nundah	Bread-weighing	C. Beaver
13 July	Nundah	Bread-weighing	H. Burton
14 Oct.	Nambour	Drainage and general sanitary inspection	Chief Inspector Simpson
6 Nov.	Nambour	Inquiry, infectious disease outbreak	C. Cato
31 Mar.	Nambour	Drainage and general sanitary inspections	H. Burton
1-3 May	Normanton	Sanitary survey	Wm. McNeil
24 Aug.	Oakey	Inquiry, infectious disease outbreak	S. Dudley
9-11 May	Old Charleston	Sanitary survey	Wm. McNeil
26 Dec.	Pialba	Inspection of hotels, boarding-houses, sanitary depôt, and beach latrines	C. Beaver
24 Jan.	Peel Island	Inspection of lazaret	S. Dudley
11 Mar. to 1 Apr.	Peel Island	Inspection of lazaret, survey, improvements	S. Dudley
2 July	Peel Island	General inspection	Chief Inspector Simpson
1 July	Port Douglas	Sanitary survey	Wm. McNeil
26 Sep.	Pomona	Sanitary survey : Selection of sanitary depôt	H. Burton
11 July	Rocklea	Bread-weighing	C. Beaver
11 July	Rocklea	Bread-weighing	H. Burton
17 Sep.	Redcliffe	Laying information, milk prosecution	C. Cato
22 Oct.	Redcliffe	Milk prosecution	C. Cato
22 Oct.	Redcliffe	Milk prosecution	C. Beaver
2 Aug.	Redbank	Drainage inspection	H. Burton
1 Oct.	Redbank	Procuring blood for Microbiological Institute	C. Cato
16-19 Dec.	Rockhampton	Departmental Inquiry by Commission	Chief Inspector Simpson
21 Feb.	Rockhampton	Inspection of sanitary depôt	H. Burton
21 Feb.	Rockhampton (N.)	Inspection of slaughter-yards	H. Burton
13 July	Strathpine	Bread-weighing	C. Beaver
13 July	Strathpine	Bread-weighing	H. Burton
24 July	Sherwood	Infectious disease inquiry	H. Burton
14 Nov.	Sandgate	Inspection of dairies	C. Beaver
5 June	Stafford-on-Kedron	*Re* pollution of Kedron Brook	Chief Inspector Simpson
21 Aug.	Stafford-on-Kedron	Inspection	Chief Inspector Simpson
12-16 Jan.	Stanthorpe	Inquiry, diphtheria and typhoid outbreak	S. Dudley
17 July	Taringa	Inspection, storm-water drainage	H. Burton
31 July	Taringa	General drainage inspection	Chief Inspector Simpson
31 July	Taringa	General drainage inspection	H. Burton
21 Aug.	Toogoolawah	Sanitary survey : Selection of sanitary depôt	H. Burton
19 Sep.	Tabinga	Sanitary survey	H. Burton
24 Sep.	Tingoora	Sanitary survey : Selection of sanitary depôt	H. Burton
29 Sep.	Tewantin	Sanitary survey : Selection of sanitary depôt	H. Burton
19 Nov.	Toowoomba	Sanitary inspection, Yarrama and Goombungee	H. Burton
30 Dec.	Tweed Heads	Inspection of camping sites	C. Cato
28-30 Apr.	Taroom	Sanitary survey	C. Cato
24-29 Apr.	Thursday Island	Sanitary survey	Wm. McNeil
4 Aug.	Woody Point	Milk sampling	C. Cato
4 Aug.	Woody Point	Milk sampling	C. Beaver
11 Oct.	Wynnum	Milk sampling ; bread-weighing	C. Cato
11 Oct.	Wynnum	Milk sampling ; bread-weighing	C. Beaver
14 Nov.	Wynnum	Drainage inspection	C. Cato
25 Apr.	Wynnum	Drainage inspection	Chief Inspector Simpson
30-31 Aug.	Woodford	General sanitary inspection	S. Dudley
21 Sep.	Wooroolin	Sanitary survey : Selection sanitary depôt	H. Burton
25 Sep.	Wondai	Sanitary survey : Selection sanitary depôt	H. Burton
26 Sep.	Warwick	Collecting water samples for analysis	C. Cato
25-27 Nov.	Warwick	Inspection of water supply and samples of comm.	C. Cato
23 Dec.	Windorah Railway	Inquiry, fever outbreak railway camp	H. Burton
11 Mar.	Wondai	Sanitary survey	H. Burton
17-19 May	Wolfram Camp	Inquiry, infectious disease outbreak	Wm. McNeil
11 Sep.	Yarraman	Sanitary survey : Selection of sanitary depôt	H Burton

4.—CYANIDING OF VESSELS.

The following vessels have been cyanided:—The steamers "Ostrea," "Bonito," "Platypus," "Eumorella," "Llewellyn," "Hercules," "Casuarina," "Pumba," "Mallina," "Burwah," "Remora," and "Mourilyan." S.S. "Hastings" and "Porpoise" were also disinfected after conveying lepers from Northern ports to Peel Island.

5.—SUPPLY OF DISINFECTING OUTFITS.

The Department has procured and forwarded disinfecting outfits to the order of the following local authorities:—Cloncurry, Maryborough, Wienholt, Cooktown, Winton, Kingaroy, Ayr, Longreach, Noosa, Eacham, Charleville, Stanthorpe, and Landsborough.

6.—INSPECTION OF SANITARY AND GARBAGE DEPOTS.

During the year fifty-one sanitary depôts and garbage disposal grounds were inspected, and where conditions were not in accordance with sanitary requirements, instruction and advice were afforded by the visiting inspector.

7.—PROSECUTIONS FOR BREACHES OF ANTI-SPITTING REGULATIONS.

Date.	Place.	Fines.	Costs.
		£ s. d.	s. d.
November 3rd, 1912	Brisbane	0 5 0	3 6
November 29th, 1912	Brisbane	1 0 0	3 6
November 29th, 1912	Brisbane	0 16 6	3 6
January 14th, 1913	Brisbane	1 0 0	3 6

8.—FOOD INSPECTIONS.

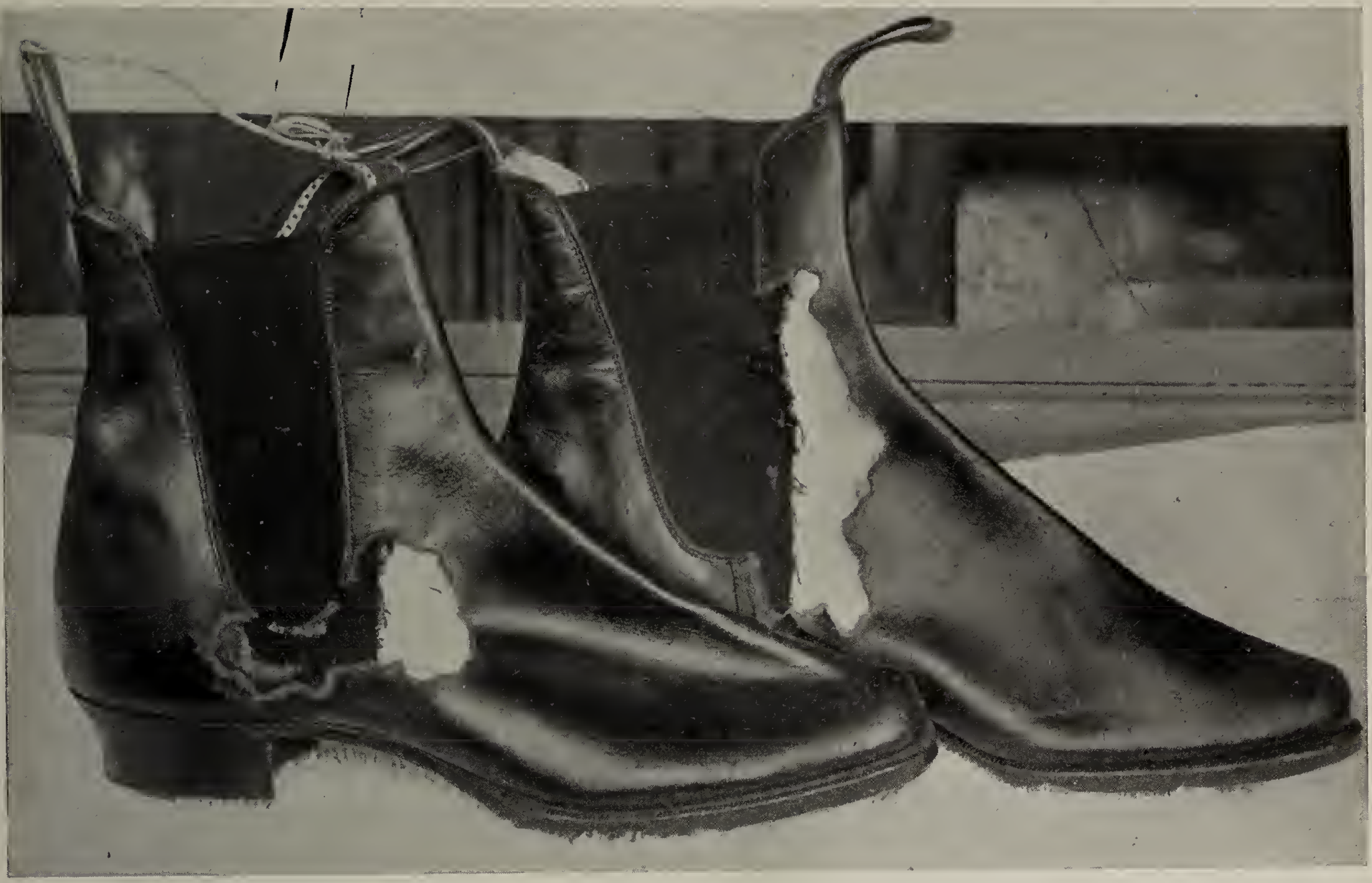
Prior to the organisation of the new food staff, the following foodstuffs were condemned by the officers of the Department during the period from 1st July to 31st December, 1912, viz.:—

1912.	Food Stuffs.	Quantity Condemned.	Tons cwt. qr. lb.	Inspector.
10 Oct.	Bananas	94 crates	47 0 0 0	C. Cato
17 Oct.	Bananas	1 case	0 0 2 28	C. Cato
29 July	Cauliflowers	27 dozen	..	S. Dudley
15 November	Hams	2 cases	..	C. Beaver
8 October	Herrings	1 tin	0 0 0 2	C. Cato
30 December	Mangoes	19 cases	0 6 1 28	C. Cato
19 November	Pumpkins	..	1 5 0 0	C. Cato
20 December	Apricots	10 cases	0 5 1 12	C. Beaver
23 October	Rabbits	1 case	0 1 0 0	Chief Inspector Simpson
			48 18 1 14	

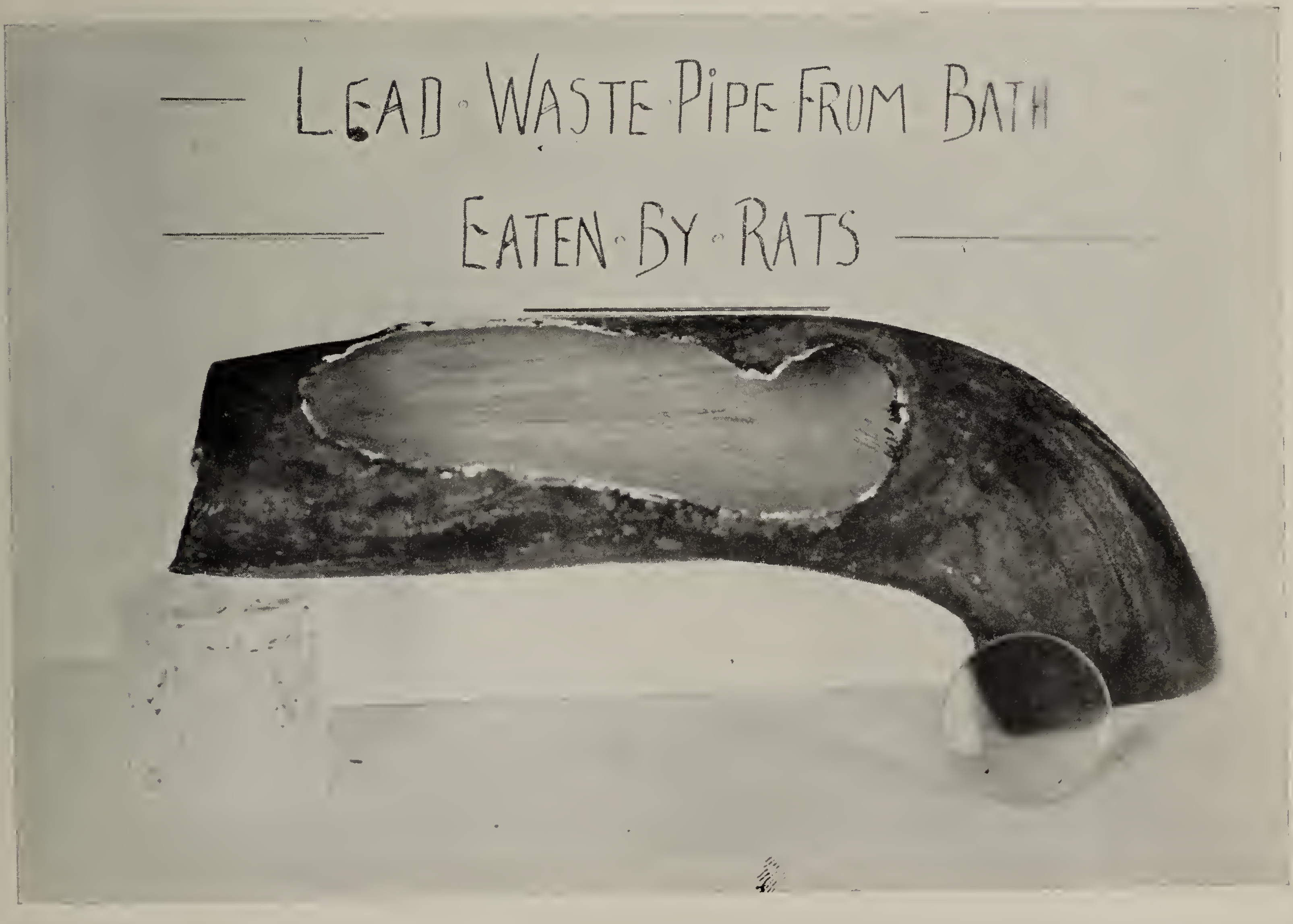
During the period above mentioned the following action was taken against vendors of adulterated foodstuffs:—

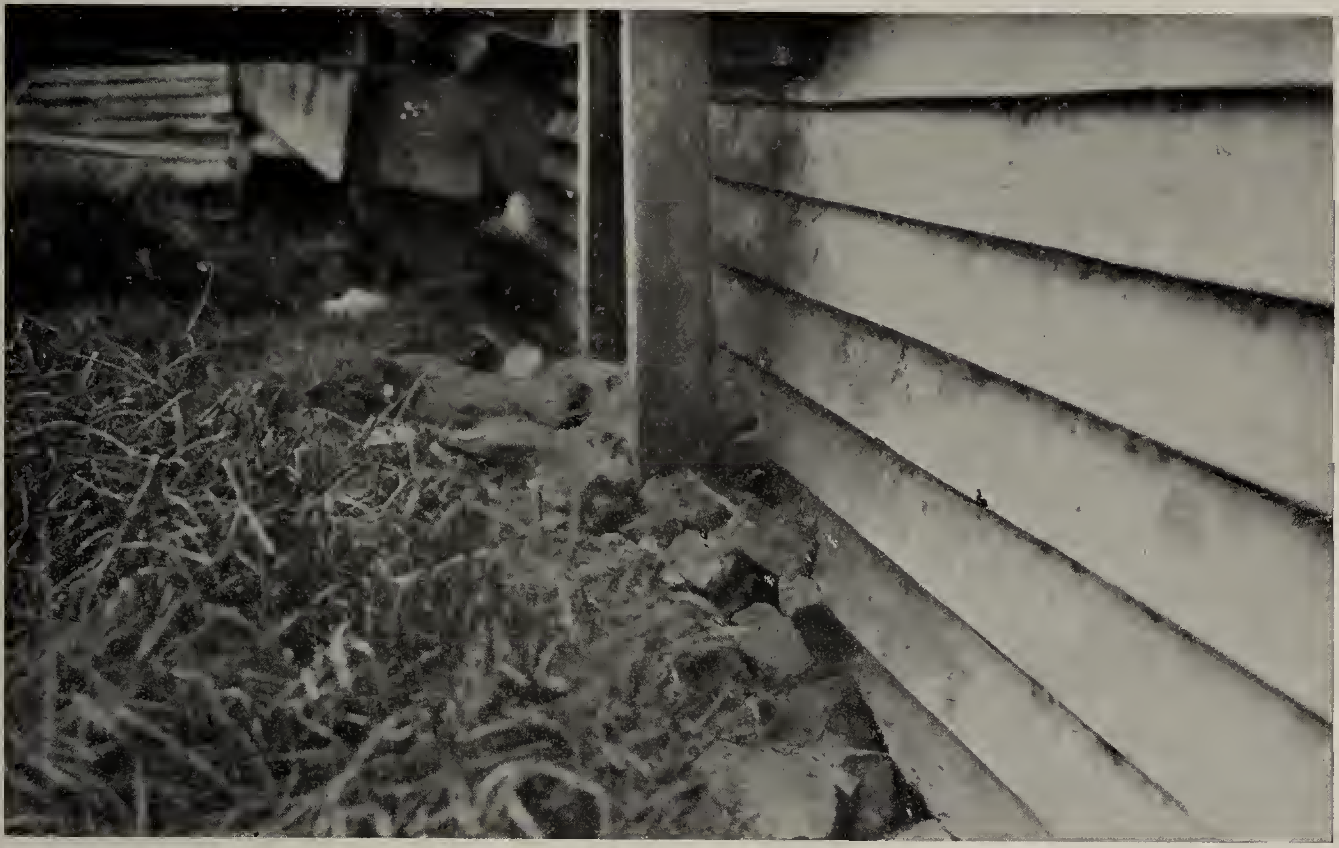
9.—PROSECUTIONS, ADULTERATED FOODS, PRIOR TO ORGANIZATION OF SPECIAL FOOD STAFF.

1912.	Offence.	Fines.	Costs.
		£ s. d.	£ s. d
19 June	27·3 per cent, deficient in milk fats	5 10 4	Including costs.
4 July	17 per cent. added water	30 0 0	Including costs.
30 July	24 per cent. added water	5 10 4	Including costs.
30 July	2·4 per cent. added water	5 10 4	Including costs.
30 July	8·8 per cent. added water	15 10 4	Including costs.
30 July	7 per cent. added water	7 15 4	Including costs.
1 August	13 per cent. added water	3 0 0	3 17 8
8 August	59 per cent. added water	15 0 0	Including costs.
13 August	52 per cent. added water	20 0 0	Including costs.
13 August	Wilful adulteration	5 0 0	Including costs.
29 August	20 per cent. added water	30 0 0	Including costs.
29 August	14 per cent. added water	10 0 0	2 12 4
5 September	Wilful adulteration	5 0 0	Including costs.
18 September	6 per cent. added water	5 0 0	3 4 6
22 October	8 per cent. added water	5 0 0	0 3 6
31 October	22 per cent. added water	10 0 0	0 3 6
6 December	Refusal to sell milk	7 7 4	Including costs.
9 December	6 per cent. added water; 12 per cent. deficiency in fat	8 10 4	Including costs.
9 December	19 per cent. added water	10 10 4	Including costs.
9 December	4 per cent. added water	7 3 6	Including costs.
9 December	8 per cent. added water	10 3 6	Including costs.
10 December	18 per cent. added water; 48 per cent. deficiency fat	20 3 6	Including costs.
10 December	5 per cent. added water	5 3 6	Including costs.
10 December	4 per cent. added water	3 3 0	Including costs.
12 December	9 per cent. added water	10 0 0	Including costs.
		£254 11 4	£10 1 6
	Total	..	£264 12 10

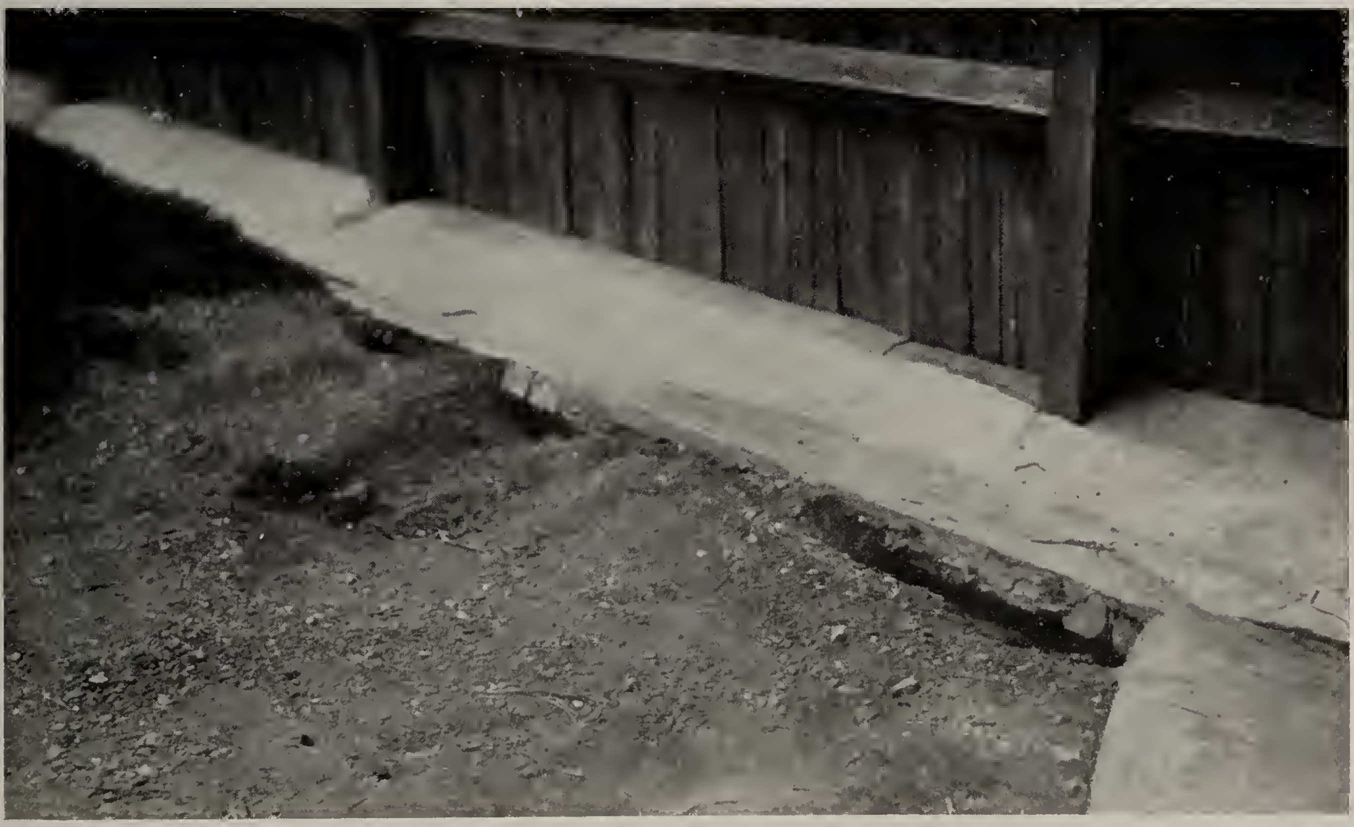


Sample from a Large Stock of Boots Injured by Rats.

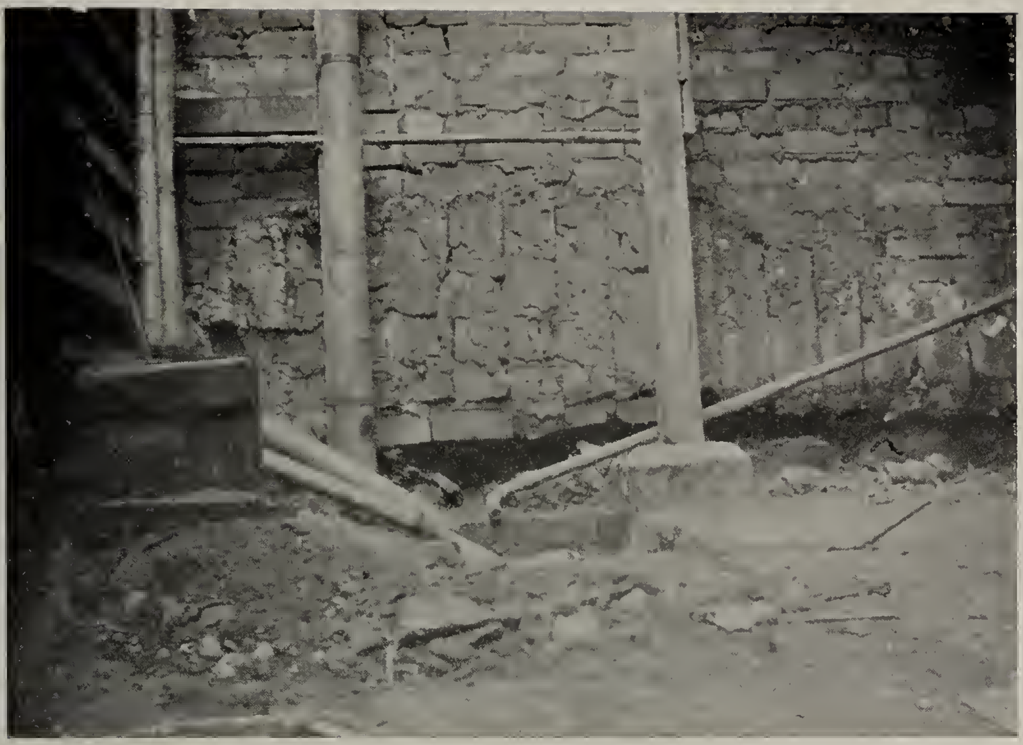




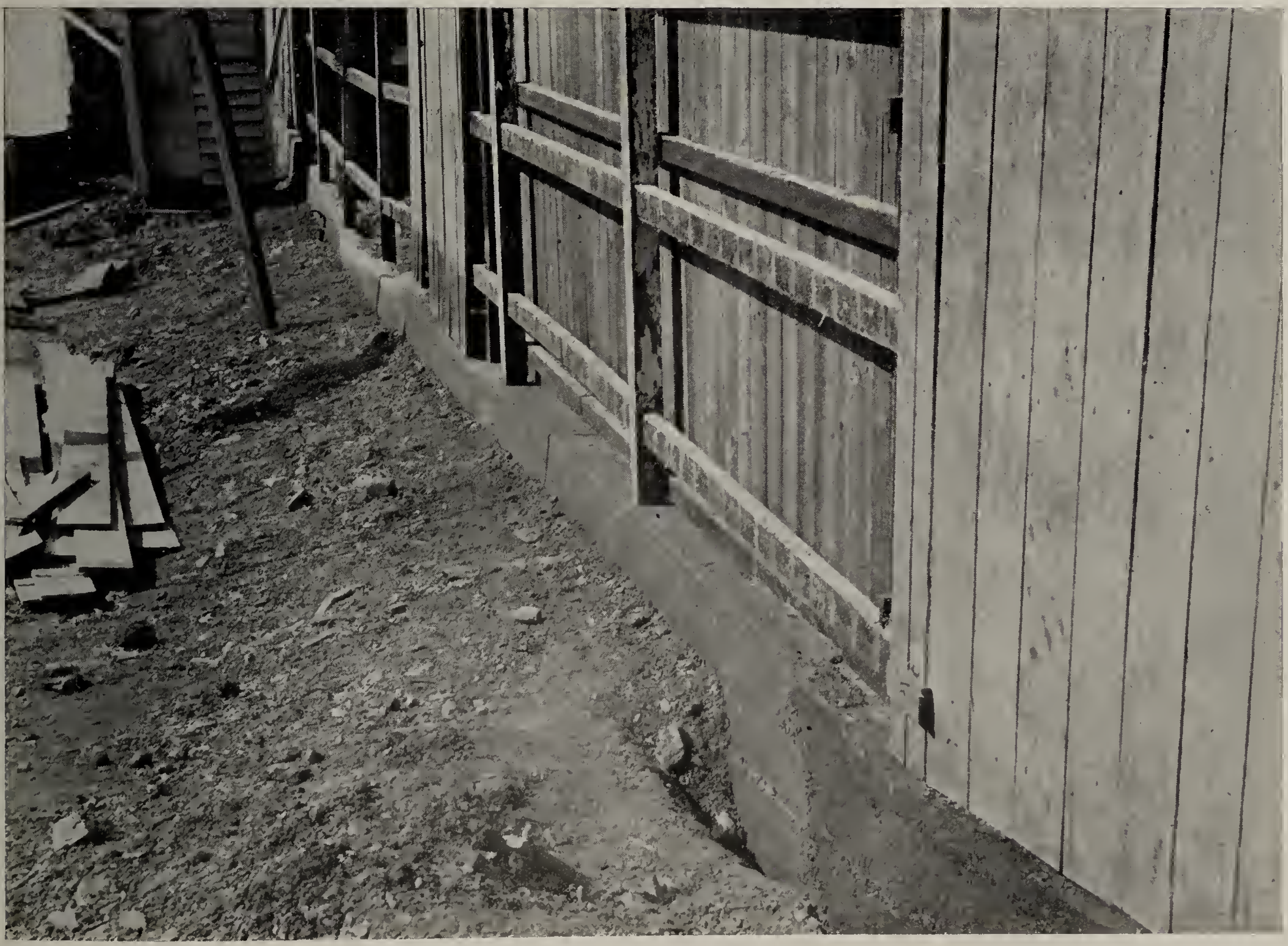
Rat Harbourage in Loose Filling-up Material Alongside a Building.
Dealt with by a baffle wall.



Access Space and Rat Burrows under Cement Water-table.
Illustrating necessity of baffle walls for cement floors laid on ground.



Wall of Kitchen at a City Restaurant Undermined by Rats.



Cement Baffle-wall, Partially Completed.

10.—Bread Prosecutions prior to Organisation of Special Food Staff.

In conjunction with the work of milk sampling, bread weighing was also carried on, and numerous bakeries and bread delivery vans had their bread weighed. Action was taken in the following cases, viz.:—

Date.	Offence.	Fine.	Costs.
		£ s. d.	£ s. d.
13 August ..	Light weight	4 18 0	0 3 6
13 August ..	Light weight	3 10 4	Including costs.
15 August ..	Light weight	5 8 4	Including costs.
15 October ..	Light weight	7 16 10	Including costs.
	Total	21 15 6	0 3 6

11.—Rat Infestation, Brisbane Area.

Seven hundred and sixty-eight visits of inspection have been made and defects noted. In many instances reinspections have also been made.

Four hundred and forty-seven notices of default have been sent to various owners of properties calling their attention to the necessary work required to be done.

Eight hundred and sixty-six square feet of brick walling have been built to prevent rat harbourage underneath buildings, &c.

Twelve earth closets have been raised up off the ground and placed on either brick piers or upon stumps in order to provide ample cat or dog access, and all rubbish found around these closets cleared away.

Eight earth closets have had their floors rendered in cement.

Three hundred and sixty-six square feet of cement baffle-walls have been sunk 2 feet deep into the ground around asphalt and cement floors undermined by rats.

One hundred and fifty-one square feet of underpinning of house and other walls that were rendered dangerous and unsafe by reason of the undermining operations of rats.

Five drains were lifted and repaired.

Two disconnecting traps were fixed on drains formerly affording a runway for rats from the main sewers.

One thousand and twenty-five square feet of double lining of timber and also galvanised iron have been taken down for the purpose of removing rat harbourage.

Eight hundred and thirty-eight lineal feet of trenching 2 feet in depth have been dug, and iron sunk and fixed in position to prevent the ingress of rats underneath buildings.

One hundred and twenty-four square feet of new brick and other paving laid, repaired, and relaid where rats found harbourage underneath.

Twenty-nine square yards of cement flooring broken and depressed into holes by the action of rats burrowing underneath have been made good.

Ninety lineal feet of cement guttering have also been laid.

Three hundred and twenty-six square yards of cement floors have been laid where rats formerly harboured in burrows.

Two kitchen ranges have been removed, the hearths laid in cement concrete and the ranges rebuilt, besides two other fireplaces similarly dealt with, where the rats had burrowed up through the masonry from below.

Two hundred and thirty-seven square feet of rubble stone walls affording harbourage for rats have had the joints pointed up with cement.

Six hundred and sixty-nine holes in the walls of buildings have been either built up in brick and cement or concreted where electric, gas, and water mains are laid on or where rats had burrowed into the masonry.

One hundred and twenty-four holes in wooden floors have been covered with iron, after all the rats had been destroyed, in order to prevent further harbourage.

Three rain-water tanks were taken off their stands, which were low on the ground, the rats destroyed, stands made rat-proof, and the tanks replaced.

Twelve doors have been fitted with galvanised-iron flashings on bottom stiles to prevent rats from gaining further access to buildings.

Two tree stumps were grubbed out and the rats destroyed and the harbourage done away with.

During the year a grand total of 17,378 rats were accounted for, besides the vast numbers that die from poisoning, which cannot be accounted for.

Six hundred and fifty-nine thousand five hundred poison baits have been made and used.

12.—Rat-proofing carried out by Occupiers and Owners of Property as the Result of Notices served by the Department, Brisbane Area.

Four hundred and fifty-one lineal feet of trenching has been dug to a depth of 2 feet, and galvanised corrugated iron sunk, around various structures that could not be raised, so as to prevent the ingress of rats.

Two hundred square feet of cement patching and concrete baffle-walls sunk 2 feet deep around cement and asphalt floors where rats had burrowed under same.

One hundred and two square feet of timber linings and flooring-boards removed to prevent rat harbourage.

Four hundred and fifty square feet of masonry pointed up with cement compo.

Nine earth closets have been raised off the ground in order to admit of cat and dog access under same.

Five hundred and four square feet of concrete flooring has been laid.

Two windows fitted with rat-proof screens.

Twenty-five holes in masonry cemented up.

Two drains repaired.

Eight hearths and holes in chimneys repaired.

Sixty-six square feet brick rat-proof walls built.

Sixty-one burrows in concrete floors cemented up.

In addition to this, large quantities of lumber and rubbish that afforded harbourage for rats have been removed, packing cases stacked properly on stages, 1 foot clear of the ground, in order to provide cat and dog access under same, and produce stored in rat-proof receptacles.

Many dilapidated sheds have been demolished, and trees and creepers affording rat harbourage have been cut down.

13.—Mosquito Destruction.

In the month of August, acting under instructions, I began operations for mosquito destruction in the Metropolitan Area under the Noxious Vermin (Mosquitoes) Order.

Inspector Cooling was placed in immediate charge of the work, and a commencement made with two men. As the scope of the operations widened, the mosquito gang was brought up to the strength of seven men. Various larvicidal agents were experimented with and their practical value determined. All swamps and collections of stagnant water within the Brisbane Area were located and systematically treated, and the sections of the Order compelling owners of property to render all rain-water tanks and underground cisterns mosquito-proof were steadily enforced. A marked reduction in mosquitoes of the domestic type was very noticeable in certain residential areas in a short time after the operations began. The creeks around Brisbane were also examined in order to find out whether they contained any fish of the minnow species that would devour mosquito larvæ, when it was discovered that there were several kinds that did so with avidity, and wherever they were found no larvæ could exist. In their absence larvæ were present, often in countless numbers.

JOHN SIMPSON,
Chief Sanitary Inspector.

APPENDIX H.

REPORT OF CHIEF FOOD INSPECTOR.

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Food-inspection Staff.

Mosquito Brigade.

Department of Public Health,
Brisbane, 1st July, 1913.

Sir,—I have the honour to submit the following Report relative to the work performed by the Division of Food Inspection for the six months ending 30th June, 1913.

For the first six months of the fiscal year under review the work of food supervision rested with the Department's general staff of sanitary inspectors, who combined this work with their routine duties.

1.—Organisation of Staff.

Upon the 18th May, 1912, the Food and Drug Regulations were gazetted, but did not come completely into operation until 1st January, 1913.

By this latter date the staff selected by yourself—the members of which had been appointed by Executive minute published in the *Government Gazette* dated 30th November, 1912—consisting of Chief Food Inspector H. W. Petherick, Senior Food Inspectors C. W. Beaver and J. Stewart, Food Inspectors L. Mason and A. Nairn Young, and Assistant Inspector Sanderson (with the exception of the first named officer) were available for duty.

On 20th January the food force was complete.

2.—City of Brisbane.

The officers immediately took the field and commenced operations in the city of Brisbane, where the work first undertaken consisted of inspections of restaurants, refreshment-rooms, fish shops, and other retail establishments of a similar type, where foodstuffs are prepared for consumption upon the premises.

(a) *Detailment of Officers.*

The work of enforcing the requirements of section 16 of the Food and Drug Regulations at this class of premises was entrusted to Senior Inspector Stewart.

From January to the end of February he made 235 inspections in this particular section.

At the same time a beginning was also made upon food factories, including confectionery works, cake and biscuit factories, fruit-canning works, jam and pickle factories, condiment factories, flour mills, aerated water works, breweries, tea warehouses, cordial factories, ice-cream factories, and other similar manufacturing concerns.

Inspector Young was detailed principally for this class of work by reason of his practical acquaintance with trade conditions and machinery.

Hotels in the city were supervised from the beginning by Inspector Mason, who, in addition, dealt with cold stores and markets.

Wholesale warehouses and general stores were handled at the outset by Senior Inspector Beaver, to whom also was relegated the work of conducting initial operations in a campaign against milk adulterators. Senior Inspector Beaver's acquaintance with local conditions and knowledge of the geography of the urban and ultra-urban districts were of inestimable advantage to us in this connection.

(b) *Scheme of Work.*

In accordance with your wishes, the inspectors were instructed that the work at the outset was to be conducted upon educational lines, and that the provisions of the new regulations were to be vigorously but tactfully administered.

Traders were accordingly given to understand that the officers were anxious and ready to assist them and at the same time were informed clearly that such advice would have to be taken seriously. Consequently, where defects were noted the inspectors called the attention of the responsible party to their existence, with a request that the same be remedied and specific information as to the methods of remedying them. Intimation was also given that upon the occasion of a subsequent visit the inspector would expect to see things put right.

This policy, I am pleased to say, was attended with excellent results from the beginning, and in our experience we have found that the majority of the trading community to whom it has been applied have fully appreciated your line of action, and have not attempted to take advantage of leniency extended to them in this respect.

(c) *Restaurants.*

Inspection of premises of the restaurant, refreshment-room, and fish-shop class revealed the fact that apart from faults in plumbing and drainage arrangements, defects noted were mainly domestic in character and consisted principally of dirty or untidy premises, ill-kept kitchens, dirty cooking utensils, and the lack of provision for proper storage of foodstuffs.

Although at the outset a number of the proprietors were somewhat inclined to resent the intrusion of the Department's officers into the domestic domain, yet on the whole the inspectors were well received, and the majority of keepers evinced a praiseworthy desire to improve existing arrangements.

(d) *Fruit and Vegetable Shops.*

In conjunction with other work, visits were also paid to fruit and vegetable shops throughout the city and suburbs.

The result was that within a few weeks the "paddy's market" like appearance of several principal thoroughfares underwent considerable change for the better.

(e) *Food Factories.*

As a result of his inspection of food factories in the Metropolitan Area, Inspector Young reported as follows upon the condition of the principal establishments of this class with regard to structure, cleanliness, processes employed, and classes of food material manufactured or prepared for sale:—

"*Cake and Biscuit Factories.*—The premises coming under this heading were found to be structurally suitable; a few minor alterations only were required and asked for, and have been attended to.

"The factories examined were found in a reasonably clean condition.

"Process of manufacture. The tendency is to employ mechanical means of manufacture where possible, to minimise the handling of the different articles, and to economise on the cost of production, as by the use of elevated hoppers for flours, machine mixers for dough, mechanical rollers, machines that roll dough, cut out and stamp biscuits and arrange them on trays for transit through a mechanical horizontal or rotary oven.

"For cakes mechanical mixers and measuring hoppers are used; thus the process of cake-making is affected less by mechanical appliances than biscuit-making, but in each case cleanliness and care were observed in the process employed.

"*Confectionery Works.*—Of the places visited that come under this heading there was only one that was being carried on under objectionable conditions. The place in question received the attention of the Department with satisfactory results.

"The processes employed are those usually associated with the manufacture of sugar goods in the shape of sweets.

"Boiled goods are the only lines handled to any extent, and here chiefly in the preparation of the boiling for cutting into the different classes of 'lollies.'

"Starch goods are brought into contact with the body when being prepared, and very few mechanical appliances are employed for any of the processes of manufacture of these goods.

"Lozenge goods are treated similarly to biscuits, viz., by mechanical mixers, automatic cutting, stamping, and printing machines, which also arrange the sweets on trays which are stacked in a drying-room.

"Chocolate goods—excepting the fancy lines such as chocolate-coated preserves—are treated by mechanical appliances and placed in a cold store to set, where they remain until packed.

"The packing processes carried out in the different factories are clean and tidy, and whenever possible mechanical means are resorted to.

"*Aerated Water and Cordial Factories.*—Factories of this class were all found structurally suitable and satisfactory as regards cleanliness.

"The process of manufacture was in all cases on the same lines, and very little variation was observed in the names of the drinks prepared.

"There is evidence of activity on the part of the different proprietors to conform to labelling conditions and the Regulations in general.

"The chief trouble of the Brisbane makers is the water supply. The quality of the water received from the service mains as to suspended matter is such as to require—as was found existing in most premises visited—a complete supplementary system of water preparation to enable them to secure a sufficient supply of potable water for commercial purposes.

"Reliable makes of essences are in use in all factories.

"*Fruit-canning and Condiment Factories.*—In this line of business there exists always the danger of dirty packing, due to—

1. The fruit coming in at a certain season of the year and thus entailing a rush to enable manufacturers to secure a sufficient stock to supply demands.
2. The tendency with a large stock of fruit and shortage of labour for deteriorated goods to be packed.
3. The employment of any sort of labour owing to the rush, and the fact that owing to it being casual work the best class of labour is not available.

Taking the above into consideration, the conditions existing in these industries are very good.

"The fruit-canning process is similar in many respects to that of meat-canning, and mechanical means are employed where possible.

"*Tea Warehouses.*—The premises inspected under this particular section were all found to be clean and well conducted, with the exception of a few places where the blending was carried out on the floor of the warehouse, and the mixing performed with a shovel.

"Where this method was found in vogue the proprietor was instructed to reserve the space so used and to protect it from traffic and to provide special boots for the use of the blender. This arrangement has been agreed to in each instance.

"In this trade, as in others, mechanical appliances are used where possible, to economise in the cost of production, as by the employment of blending, weighing, and packing machines.

"*Vinegar Factories.*—The process usually employed is one whereby the makers endeavour to produce by aerobic vats and filters a vinegar in greater quantity and of equal quality to that produced in the past by the storage process.

"The factories were found clean and well kept."

(f) Smaller food-manufacturing businesses.

The smaller factories were also subjected to careful scrutiny, inquiries being directed to condition of premises, methods employed, and cleanliness of plant, utensils, and employees.

In these small manufacturing concerns the absence of elaborate mechanical appliances necessitates more frequent handling of the material prepared, and, in consequence, more rigid supervision is required in order to ensure sanitary conditions.

Although many of the premises within this division are primitive in structure, Inspector Young found the majority in a fairly satisfactory condition as regards cleanliness and as regards the classes of material handled.

Where notices were served upon the responsible persons to effect improvements, reinspection invariably disclosed that these had received attention.

Inadequate provision for the safe storage of foodstuffs awaiting treatment was a defect frequently dealt with in this connection, while in certain instances the attention of employees had to be directed to their own personal hygiene.

Smoking in such establishments whilst handling or preparing foodstuffs has been prohibited wherever met with.

(g) Wholesale Warehouses and City Stores.

These premises were at this time inspected and stocks overhauled; any material of an inferior character being dealt with by the officers as they proceeded. The attention of those concerned was also directed to conditions met with in the matter of labelling which failed to satisfy the requirements of the Acts and Regulations.

(*h*) *Retail Stores.*

Grocers and general storekeepers were also instructed to remove perishable food material from outside their shops, the fronts of which were largely availed of for the show of such.

For the improvement which followed in this direction the Department is largely indebted to the assistance rendered by the Retail Traders' Association, which body notified its members by circular of our requirements.

In a report submitted by myself in February of the year under review, and dealing with this question, I remarked upon the desirability of storekeepers proceeding a step further in this direction by ceasing to display foodstuffs of any description without their premises.

It then appeared to me that much of the spoilage met with in such lines as condensed milk, tinned fish, and canned meats was brought about by the action of the sun's rays upon containers when exposed to its influence in the open.

The majority of retail storekeepers have since ceased from placing tinned and other foods in the grocery line outside their premises. A few, however, persist in the practice, and dogs consequently have still a number of handy but undesirable conveniences available for their requirements. Where educational means fail to stop this practice an effective remedy is provided.

3.—HOTELS.

Section 99A (2) of "*The Health Acts*, 1900 *to* 1911," provides that no person shall use, for drawing from any receptacle any beer for purposes of sale, any pipe—(*a*) made wholly or partly of lead; or (*b*) which is not kept in a clean and wholesome condition.

Inspector Mason visited all hotels in the cities of Brisbane and South Brisbane, as well as in certain other localities, for the purpose of enforcing this section of the Acts and also the general requirements of the Acts and Regulations affecting such businesses.

This meant that he had to inspect all hotel cellars in order to determine the nature and condition of pumping appliances in use, and to visit and inspect kitchens, dining-rooms, &c., at such places in order to satisfy himself of the conditions under which foods were prepared and stored.

The results—as set forth in a report submitted by the officer concerned—are very satisfactory, particularly when the general conditions existing at the outset are considered, and when the cost entailed in bringing about the change is borne in mind.

In the areas dealt with by Inspector Mason 89 hotels were inspected, of which 20 were found to have their beer-pumping apparatus in conformity with the Act. Sixty-nine hotels were served with notices to correct existing methods, of which number, upon reinspection at a later date, 64 were found to have eliminated lead pipes and coils and to have replaced them with those composed of approved material. Four hotels required only slight alterations to bring them into line, and in one case only was nothing done. Neglect in this latter case was due to a change in ownership, and the new proprietor has since put the work in hand.

The following remarks upon the subject are extracted from Inspector Mason's report:—

"At the outset the majority of connections examined were found to be of lead, or 'silver' or tin-lined lead.

"The lead pipes—apart from their dangerous nature when in contact with the acid constituents of the beer passing through them—could in numerous instances have been condemned alone on account of their deteriorated condition.

"Twisted, turned, and bent in an extraordinary manner, some of the very old pipes presented a grotesque and suspicious appearance, while a few that were available for dissection proved internally to be almost completely choked with fungoid growths and sediment. It must have been impossible to in any way efficiently cleanse the interior, and the bore being destroyed and rough, formed innumerable crevices for the lodgment of liquor and the propagation of fungi.

"Most of the pipes were maintained to a ripe old age by numerous patches of new piping—the jointing of which could not be beneficial to the inner surface.

"Of the 'tin-lined' and 'silver-lined' pipes met with the majority were in good repair—being of more recent introduction than the all-lead—but, being handled in a similar fashion, the twisting and bending soon destroyed the efficiency of the lining material, which in numerous instances consisted only of a tin wash.

"The material principally adopted by hotelkeepers to replace the lead pipes is tin, and a special piping of pure tin, manufactured for this class of work and known as 'block tin,' forms the whole or major portion of the new connections.

"This piping has a clean smooth bore. It cannot be bent at will in any direction, and, being workable only by skilled labour, is properly manipulated and permanently fastened.

"Much improvement is already apparent through the installation of the new connections, due principally to effective cleansing of the tin piping, which presents a smooth unbroken surface to the passage of the hot water usually employed as a flushing medium.

"Given proper attention and regular flushing, the fungoid growths and encrusting sediments common to the interior surface of lead pipes should be an unsavoury feature absent in the tin pipes which have supplanted them."

4. MILK INSPECTION.

Supervision of the public milk supply was a measure in which the division took vigorous action from the start, and this has been sustained throughout the period dealt with.

At first the inspectors were somewhat hampered by reason of the fact that a horse and trap was the only means of transit available for the work of sampling. Later on, when the hire of a motor-car was sanctioned for this purpose, the matter assumed a business aspect and the results obtained realised anticipations.

With this means of locomotion it has been possible to procure an increased number of milk samples over an extended area, to patrol the Metropolitan Area efficiently, and to keep vendors under something like control, while the class of milkman whose horse was wont to bolt on the appearance of an inspector has succeeded —since the advent of the motor-car—in keeping the refractory steed in subjection.

The number of samples of milk procured and submitted to the Government Analyst during the year ended 30th June was 413, of which 56, or 13·07 per cent., were below standard. Forty-three police court cases were taken, of which 41 succeeded, and two—for technical reasons—were disallowed. The total penalties—including costs —amounted to £393 16s. 8d., or an average of £9 3s. 2d. per case on all cases taken.

Special attention has been devoted to the disgusting practice of closing milk can lids with rag. Numerous warnings were given, and seven prosecutions were successfully taken. The total penalties imposed for these offences amounted to £24 3s. 6d.—or an average penalty of £3 8s. 8d. per case.

Seven prosecutions eventuated as the result of obstructing inspectors and refusing to allow samples of milk to be taken for analysis. In these cases the culprits were mulcted in amounts totalling £59 1s. 6d., an average of £8 8s. 9d. per case.

In addition to routine milk work in the Metropolitan Area, special trips have been undertaken to various country centres for the purpose of procuring samples. Principal amongst these are Stanthorpe, Warwick, Toowoomba, Ipswich, Maryborough, Gympie, Gladstone, Bundaberg, and Rockhampton, to all of which places special journeys have been taken on short notice.

In discussing the question of milk supplies generally, the following remarks are included, *inter alia,* in Senior Inspector Beaver's report:—

"With reference to adulteration, it appears that the only deterrent is the detection of offenders, and heavy fines or imprisonment meted out by the magistrates.

"The operations of the Department during the past few months alone serve to show that in places in close proximity to the metropolis—where samples of milk are continuously taken—the quality of the article supplied is well up to the prescribed standard; whereas in country towns a surprise visit generally results in a crop of cases. Repeated sampling and prosecuting in the same district often goads the dishonest milk-vendor to obstruction of officers and refusal to supply the sample demanded. An appeal, however, to the magistrates quickly convinces these persons that tactics of this description are of no avail.

"The difficulties in the way of procuring samples are many. The meek-looking man who leaves the milk in the afternoon often turns out to be of different calibre when met in the dark at 3 a.m. by an inspector. The man who "accidently" trips over a shadow and incidentally spills the contents of the can he is carrying is usually most profuse in his regrets that he is unable to supply a sample. The greatest difficulty at present is the practice of carrying water on the cart, which makes it possible for the milk to be adulterated in the measure and renders it almost impossible to secure the sample for analysis.

"The application of section 96 of the Health Acts would prevent this, and would provide for registration of the milk-seller and also the inscription of his name and address on the cart or receptacle. This latter provision if applied would remove the difficulty that exists at present of proving ownership."

5.—Bread Weighing.

Bread weighing has been performed by the inspectors in the Metropolitan Area and certain country districts.

During the year four prosecutions were undertaken against vendors of light-weight bread, and penalties amounting to £21 16s. were imposed by magistrates.

6.—Liquor Inspection.

Liquor inspection and testing has been carried out in the city and suburbs, as well as in certain country towns, by the food inspectors during the year.

Special visits to certain places have been paid where complaints made relative to the quality of spirits vended by individuals have appeared to warrant action.

At times investigation has proved such complaints to be well founded, and, on the other hand, it has been found upon occasions that all spirits stored in the house complained of have complied with the requirements of the Acts and Regulations, and at times, in fact, have considerably exceeded the minimal standards.

Inspector Young's report upon the question —and with which views I am disposed to agree— will be found interesting in this connection.

The conclusion arrived at by him is that haphazard methods of "breaking down" bulk spirits by many publicans, and the consequent variation in strength and alteration in taste detected by the palates of consumers, are both largely responsible for the different effects upon individuals partaking thereof as well as for complaints made regarding quality.

His opinion, also, is that what sophistication is practised in this State at the present time consists in all probability—except in isolated instances—in the substitution of a cheaper spirit or in the increase of bulk by the addition of water over and above the quantities permitted by the Acts and Regulations.

Inspector Young's Report.

"It is the opinion of many that the liquor vended in the country districts of Queensland is vile and akin to poison, and that the persons vending it are, so to speak, waiting with a club, in the form of sophisticated liquor, to knock out all and sundry who enter their establishments to drink.

"That such may have been the case once is quite possible, but those persons who entertain the above old-fashioned notions have lost sight of the fact that increased population and commercial competition have led to the general displacement of the old type of hotelkeeper by a person who as a rule is wise to the fact that to hold his share of the trade—and a little of the other fellow's at the same time—a good class of liquor has to be provided. Also:

1. The entrance into the market of an increased number of reliable brands of liquors caused by the demands of increased population and the opening up of trade facilities.

2. The decrease of railway freights over vehicle carriage, which has also been responsible to a very considerable extent for the good class of liquors vended throughout the Northern districts."

Inspector Young then follows with a lengthy and detailed account of his inspections of 128 hotels situated in the North and upon the North-western slopes of Queensland, and concludes as follows:—

"It appears to me from my observations that the only adulterations practised are with water, and the addition of caramel . . . . and as regards many of the complaints made of the injurious effects upon consumers of the liquors vended at certain places, it appears to me that it is not the case of bad liquor so much as—

1. The physical condition of the person affected (which must always be taken into account);

2. The tendency of individuals to exaggerate, to make their case exclusive, and create an interest in themselves and their condition;

3. The temptation to blame the liquor when haled before the court, as a means of proving they were not responsible for their actions when run in, and at the same time to lighten the penalty;

4. And cases where the liquor has been blamed for causing or assisting in causing insanity. This result is not brought about exclusively by the consumption of *bad* spirits.

"Intoxicating liquors affect all persons differently. What one person can carry with ease will knock another over. One man will remain to all appearance normal, another quietly silly, and yet another possibly a raving lunatic, on approximately the same quantity of the same quality liquor.

"Nicotine, chlorodyne, H_2SO_4, white spirit, &c., are weapons that—so far as 99 per cent. of hotels are concerned—have been consigned to the museum of ancient practices. The hundredth case is the isolated house known as a wayside 'shanty' or the 'sly grog-seller' on construction camps, and the inspector will not catch this individual by any ordinary procedure."

7.—SUPPLEMENTARY DUTIES.

From the time the Food Staff took the field to the present date, routine duties have been supplemented by those of a special nature—such as night patrol of the urban and ultra-urban areas on inspection of shop fronts, attendance at auction sales when food lines are being offered, inspection of cold stores, markets, bond stores, river wharves, coffee stalls, hawkers' carts, barrows, and baskets, railway stations, and goods sheds—upon which work all and each of the members of the Food Staff have taken their turn—early morning or night as the case has required.

8.—INSPECTIONS OF COUNTRY DISTRICTS.

The total mileage travelled by the food inspectors on country tours during the period under review works out at 15,103 miles, apportioned as follows:—

	Miles.
Chief Food Inspector Petherick	2,597
Senior Food Inspector Beaver	3,354
Senior Food Inspector Stewart	3,575
Food Inspector Mason	1,548
Food Inspector Young	4,029
Total	15,103

BAKEHOUSES AND CORDIAL FACTORIES IN WESTERN QUEENSLAND.

Some Comments on, by Senior Inspector Stewart.

"In travelling through the Western and North-western districts, I have come across very few bakehouses approaching the high standard of cleanliness attained by certain of those inspected in the metropolitan and Ipswich areas.

"The fact that so many bakehouses in the West and North-west of this State have been found provided with floors of earth only is of itself sufficient reason to warrant continuance of the supervision of such premises.

"This condition, combined with the fact that the majority of bakehouses visited by me during my recent tour were found to be in an unclean condition, calls for more drastic action in the future when dealing with such businesses.

"At certain of the Northern and Western towns I found a peculiar feature existing. In the bakehouses at these places the dough, after being put into the tins is found, if left uncovered, to soon form a dry, hard crust, which spoils the appearance of the loaves and which usually peels off after baking. To prevent this drying of the dough surface, the bakers place wet sacks over the tins containing same, until such time as they are ready for the oven. As a very large percentage of the bakehouses in the towns mentioned were not maintained by the proprietors in a cleanly condition, it is hardly to be expected that the bags used are likely to receive any special attention or to be kept as clean as they should be.

"The most remarkable type of bakehouse met with in my journey through these quarters was in a primitive Western mining town, the owner of which furnished as the reason for its peculiar construction that it was in order to protect the dough from the influence of hot winds and prevent the dough surface from drying hard. In this bakehouse the oven floor is on the ground with arch thrown over in the usual manner; at the door end of the oven a trench is sunk 3 feet 6 inches into the ground, the width of the oven. At two sides of this trench ledges are left on which troughs are placed. The floor, ledges, and sides of trench are not protected in any way from erosion—as by a layer of concrete or other suitable material—the result being that the bakers were treading on flour mixed with powdered rotten rock. The ledges on which the troughs stand being still in the same condition as when originally finished off with the pick, form ideal places for the lodgement of dirt. The tops of the troughs were level with the earth floor above—at just the right height to receive a maximum of the dirt that might be blown from the floor on a windy day.

"*Cordial Factories.*—An opportunity presents itself to the thoughtful individual to devise ways and means whereby the makers of aerated waters and cordials may comply with section 54 of the Food and Drug Regulations on a practical basis.

"The aerated water manufacturer's principal difficulty lies in the preliminary treatment of water in order to free it from the excess of suspended matter so frequently met with in this and other portions of the State. Various means are employed to bring about this result, but the most crude method I have come across was that practised by a manufacturer in the far Western portion of this State. This individual added to the water, as a precipitant, a mixture consisting of permanganate of potash, alum, and Spanish clay.

"His methods, like the factory itself, were of so unsatisfactory a description that I found it impossible to sanction their continuance. The factory was situated on unenclosed ground with no protection from the elements save for that afforded by a collapsing trellis covered with dry bushes.

"Goats, dogs, cows, and other animals had access to the premises, including the tubs in which the bottles were washed, and out of which, doubtless, these creatures drank while the enterprising proprietor was having lunch or attending to other matters.

"One progressive publican in a 'back-country' town was found to have made a determined effort to comply with Food Regulation No. 16—viz., to wash bottles used to contain beverages in running water. He had fitted a rotary pump and a set of water jets in position over a tub, and—water under pressure not being available—was using stagnant water pumped from this tub through the jets, over and again.

"The proprietor of one establishment visited, desirous of moving with the times, had installed a filter in conjunction with his soda fountain. On inspection, I found the filtering medium to consist of a strip of ordinary filtering paper wrapped round a gauze tube, the disgusting, slimy appearance of which created a feeling of nausea. The owner was unable to recall to memory the date upon which it was last cleansed, or whether months or years had elapsed since he last removed the paper.

"I need hardly state what action I took."

Country Inspections.

Country inspections commenced in the month of April, when Inspector Young sailed for Thursday Island.

After completing a thorough investigation of this important centre, that officer continued a tour of the principal towns in the northern portion of Queensland, a task which took nearly three months to accomplish.

Much useful information was gathered and many curious food specimens collected.

It is satisfactory to record that Thursday Island with a cosmopolitan population of Europeans, Japanese, Chinese, Cingalese, Manilamen, and Torres Strait and South Sea Islanders, and situated in a quarter remote from regular supervision, should have been found possessing stores and food factories, together with goods contained therein, in excellent order and condition, and comparing favourably with similar establishments located in more favoured situations.

Towards the latter end of May the Chief Food Inspector arrived in Townsville, where he completed a series of inspections of the wholesale warehouses previous to being joined by Senior Inspector Stewart and by Inspector Young on the latter officer's return journey south.

With these officers in the field, a systematic food inspection of Townsville was started and completed. Senior Inspector Cottle and Inspector Wright, of the Northern Sub-Office, here joined forces with us, and, in accordance with your instructions, the Northern officers were instructed in the methods of the headquarters staff, in order to ensure uniformity of action and procedure.

Before leaving Townsville the towns of Ayr and Brandon, as well as two important meatworks, were visited and inspected.

Upon the completion of Townsville, the Chief Food Inspector, accompanied by Senior Inspector Stewart, proceeded to Charters Towers, which city was worked out on the usual lines, and the western advance to Cloncurry continued.

From Cloncurry the neighbouring mining centres of Friezland, Selwyn, &c., were taken and thoroughly overhauled, as well as the town of Cloncurry itself.

A start was then made for Winton, from which town a journey across country of 125 miles to Longreach was negotiated, and the railway-line towns situated between that point and Rockhampton dealt with *en route.*

A complete list of towns visited will be found tabulated and attached.

General Scheme of Country Inspections.

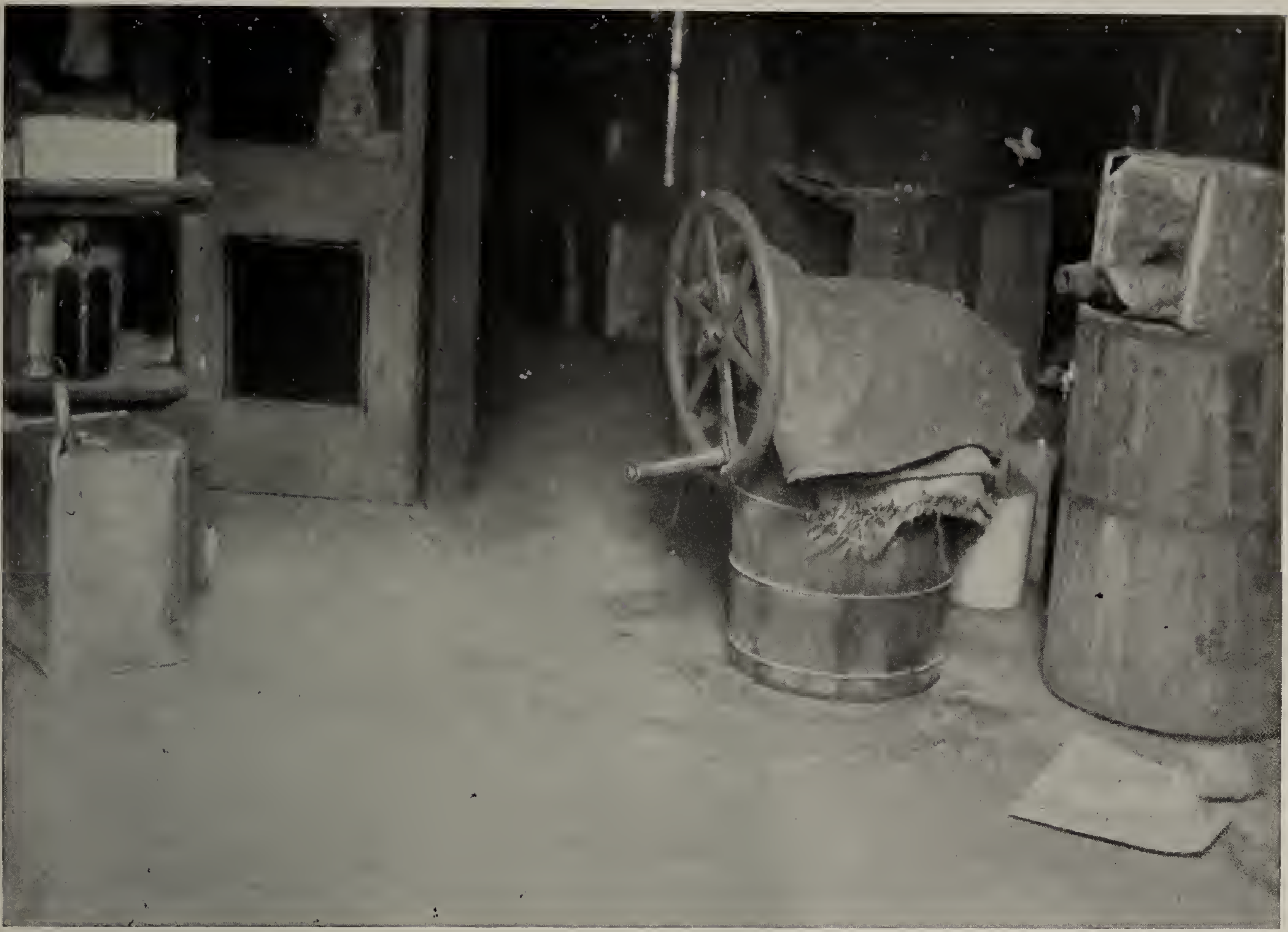
The line of action followed in the inspection of country towns consisted in an overhaul of wholesale warehouses and retail stores, inspection of hotels, restaurants, refreshment-rooms, ice-cream factories, ice works, food factories, aerated water and cordial factories, bakehouses, and butchers' and bakers' shops, as well as the inspection of dairymen's premises in districts not under the supervision of the Department of Agriculture and Stock.

Deteriorated foodstuffs were dealt with upon the spot by arrangement with the owners, and in cases where the owner expressed a doubt, the goods in question were sealed up and a sample forwarded to the Government Analyst for report.

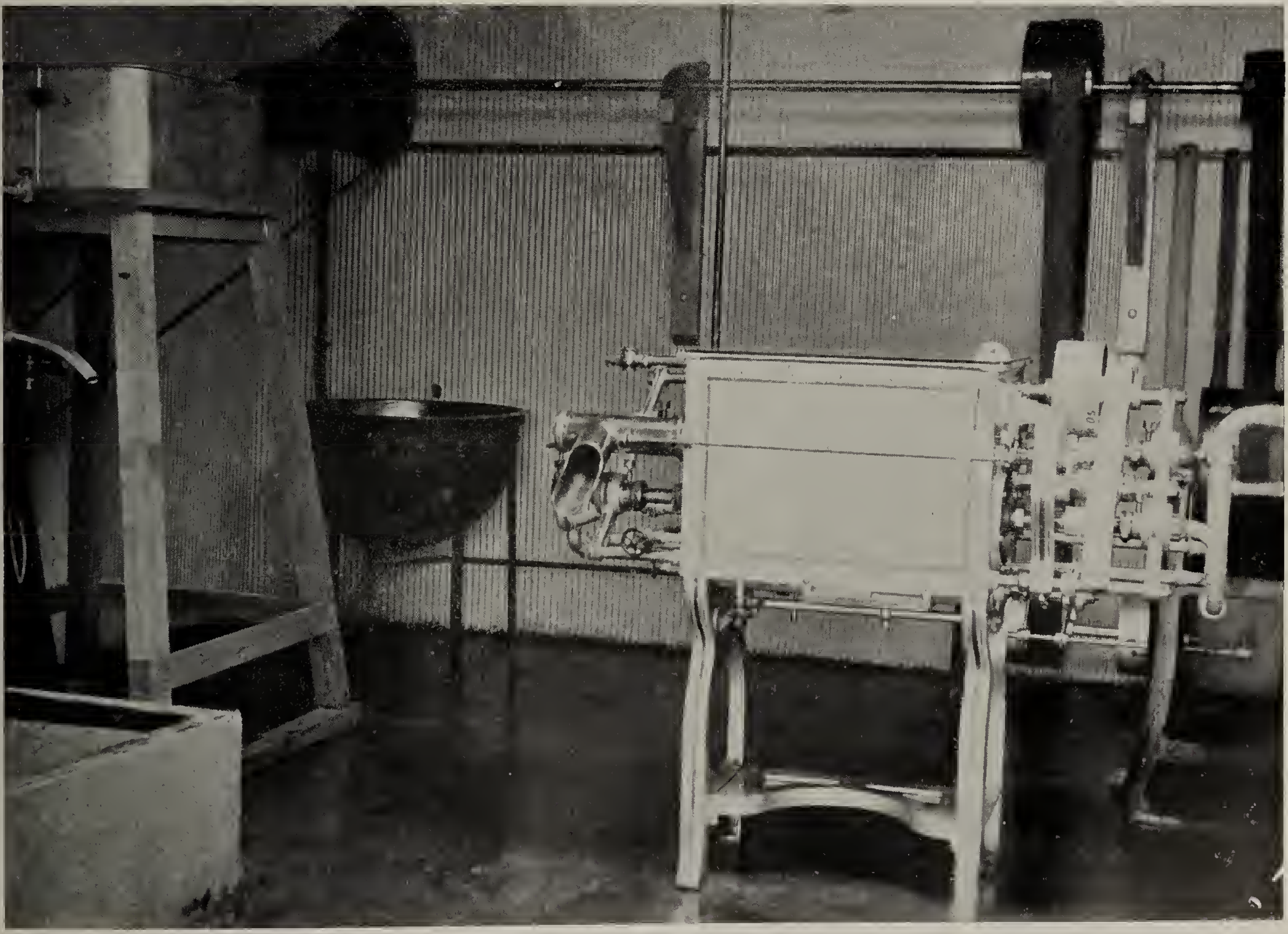
Defects noted in the premises visited were made the subject of notices written out by the inspector on the spot and served upon the responsible party, except in cases where serious structural alterations were involved, in which case application was made to Head Office for service of an order in official form.

Labelling conditions were discussed by the officers with the various firms and individuals concerned.

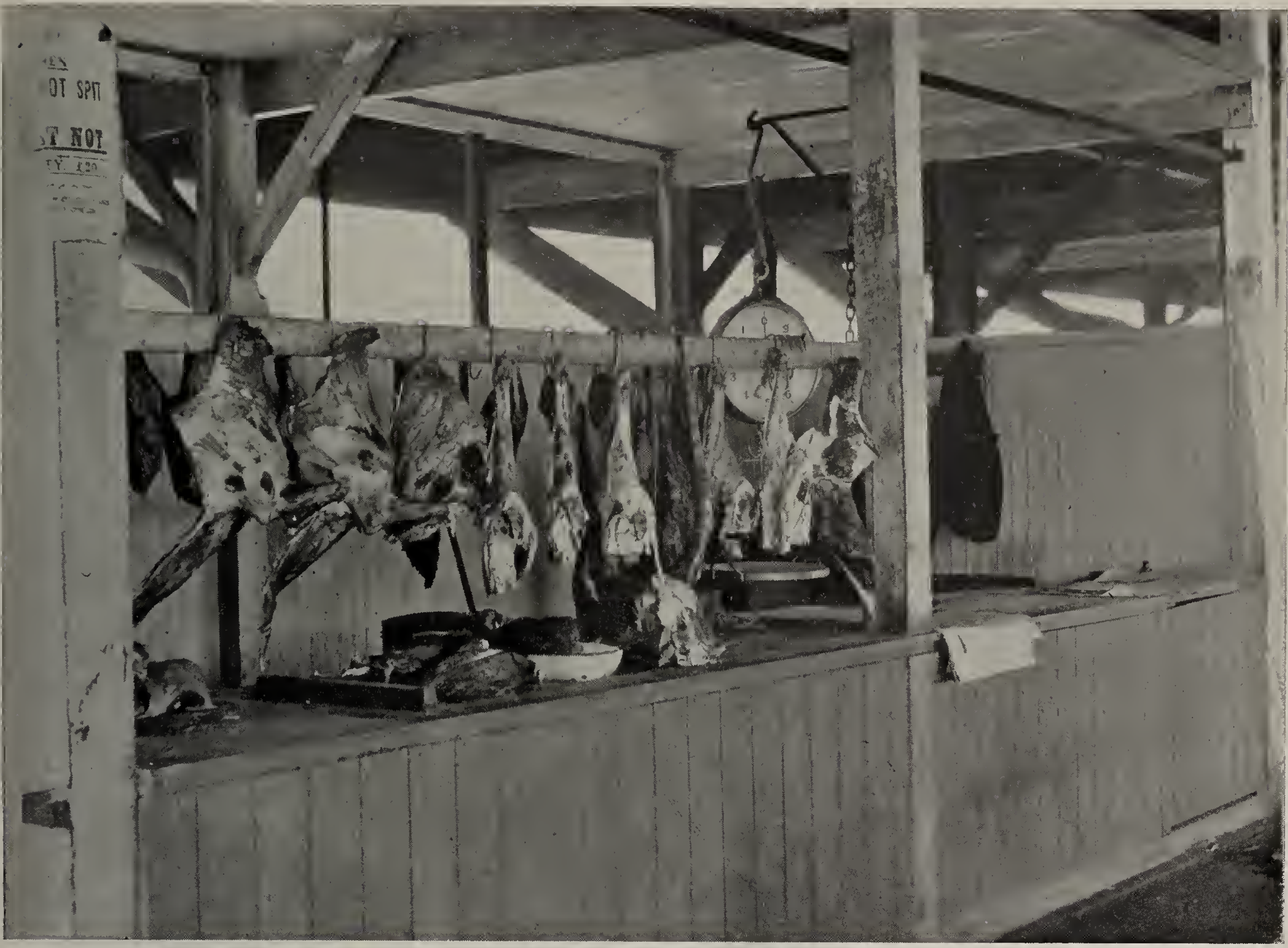
Hotels were treated similarly to those in Brisbane, and notices were served upon the spot for the elimination of lead beer pipes. Kitchens



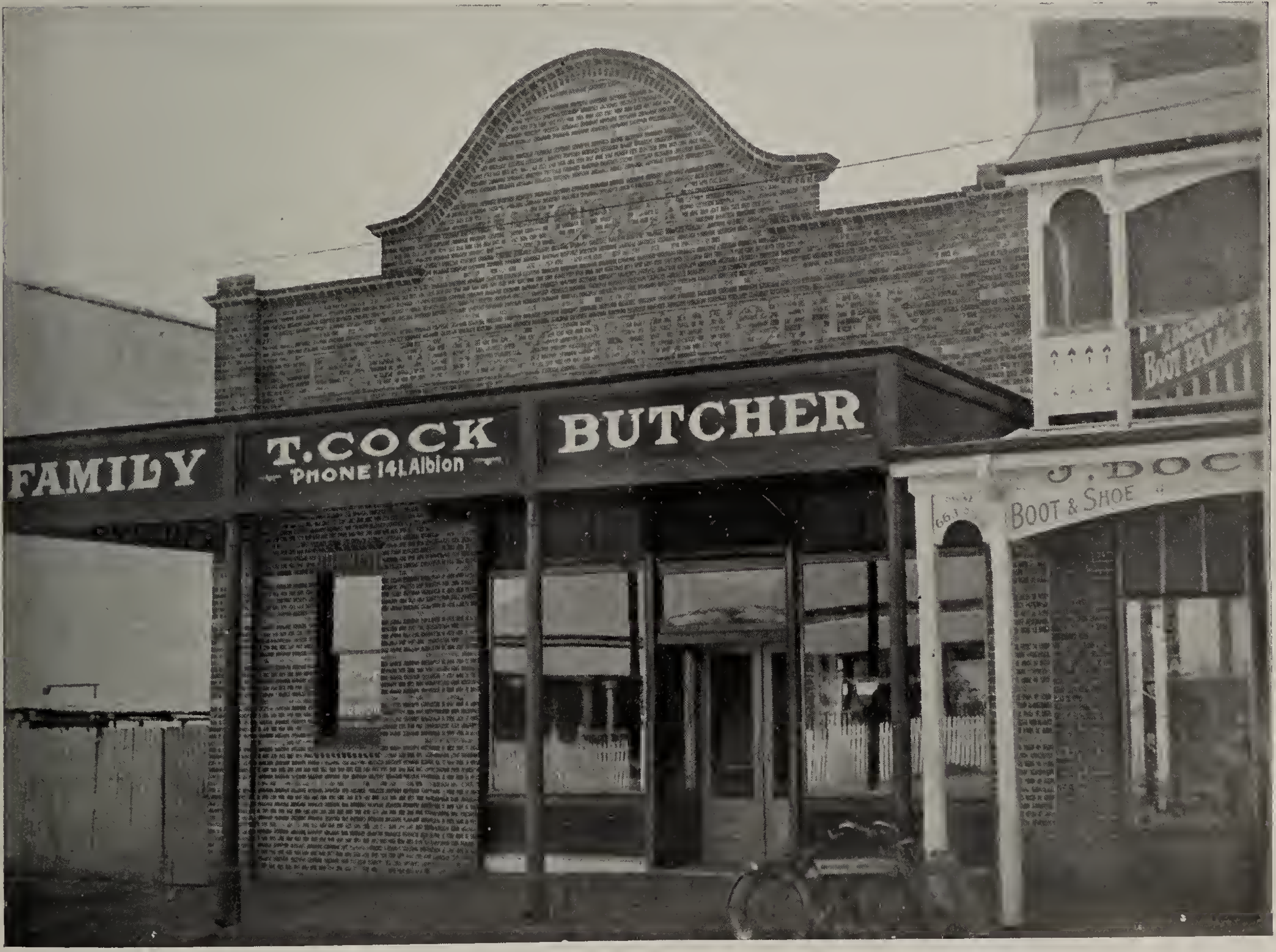
Ice Cream Factory—Old Type.



Ice Cream Factory—Modern Type.
Constructed in accordance with the provisions of the Food and Drug Regulations.



Butcher's Shop, Old Type, Open Front.



Butcher's Shop, Modern Type, Fly and Dust Proof.

and dining-rooms received special attention at these places and in restaurants and refreshment-rooms.

Places manufacturing ice-cream or ices were supplied with a copy of the Food Regulation covering such establishments, and the attention of proprietors was called to the distinction drawn between the two substances under the new law.

Aerated water works and cordial factories had special attention paid to the sources from whence water supplies were derived.

In factories where filters were absent, the proprietors were by notice required to cease from manufacturing until such time as the water used in the manufacture or preparation for sale of beverages had been passed through a filter or filters approved by the Commissioner, and thereafter until use had been so kept as to be free from contamination.

The method of storing filtered water was also inquired into, and the covering of storage tanks and syrup containers insisted upon.

The usual inquiries into methods employed in manufacture of beverages and cordials were made, and an examination of materials followed.

Lead piping when met with at cordial factories was required to be removed from appliances.

In bakehouses and bakers' shops, general conditions were noted, source of water supply inquired into, and instructions given regarding the prohibition of wrapping of bread in newspaper.

Where bakehouse floors were found composed of earth, provision of a suitable floor of approved material was required. Exception was also taken to the storage of yeast in unsuitable receptacles, as well as the practice of covering dough with dirty wet sacks.

Butchers' shops afforded ample scope for inquiry, particularly regarding the use of preservative substances, composition and condition of brines, and methods of preparing various meat compounds.

The old and favourite practice of filling holes in chopping-blocks with molten lead was terminated wherever met with, as was also the presence of verdigris upon pickling pumps.

A point to which the attention of butchers was frequently drawn was that the provision of fly-proof wire-gauze to their establishments did not terminate their responsibility in the direction of protecting food material from contamination, and that if they persisted in leaving the doors ajar, the shop was open to flies and the butcher to prosecution.

Dairymen's premises in districts not under the supervision of the Department of Stock and Agriculture were visited. Defects common to the majority were—lack of provision for the proper storage of milk vessels, unfloored bails, proximity of manure heaps, &c., to milking-sheds, and the want of a stringent code of local dairy by-laws specifying requirements.

Milk vendors required particular attention—as was the case in the Metropolitan Area at the outset—in the matter of the employment of rags for stopping the lids of milk cans. Wherever the use of such material was detected, the inspectors advised the offender that repetition would ensure prosecution.

This point was also emphasised when dairymen were called upon.

9.—Sampling.

The results of sampling throughout the period under review, both in the metropolitan and country districts, will be dealt with in detail by the Government Analyst, consequently I can add nothing but the appended table of the number and nature of the articles obtained, and the thanks of the food inspectors to Mr. Henderson and the State Analysts, Messrs. McCall and Meston, for their courtesy and ever-ready assistance.

The total number of food samples dealt with during the year was 861, consisting as per attached list of articles. So far as the actual number of samples submitted is concerned, I would point out that in this matter we have been guided entirely by the wishes of the Government Analyst, whose limited staff has at times been pushed to avoid congestion and cope with our work.

So soon as additional assistance and space is available in the Government Analyst's Laboratory, the Food Staff will be able to extend its work in several new and much-needed directions in the sampling of food and drugs.

Appended will be found tabulated statements dealing with statistics relating to the general work of the Food Division.

10.—General Review.

A general review of the operations of the Food Division over the period covered is decidedly reassuring, notwithstanding that the force is small and the field unusually wide.

The food inspectors have been working for only six months, in which short space their operations have extended from Wallangarra in the south to Thursday Island in the north, and from Brisbane on the east to Selwyn on the west.

It has of necessity been impossible in the time for the officers to fill in all the small details in the areas traversed, but still it is satisfactory to realise that upon broad lines the most prominent features have received attention.

It is satisfactory, also, to find that a new set of Regulations—exceedingly stringent in character—has been brought into effective operation with scarcely any expressed feeling of harassment on the part of those commercial interests which are most chiefly affected, and with the open and hearty support of all the great food-trading organisations in the State.

A glance at the list of foodstuffs destroyed during the past six months will serve to show the extent of ground covered, while the fact that no complaint has been received of alleged injustice, nor has any appeal been made upon the question of legality, shows that due care and skill have been exercised in the execution of the work.

So far as requisitions are concerned, the service by inspectors of notices upon the spot went far towards obtaining prompt enforcement of the requirements.

When a fault is pointed out and discussed with the person concerned, and a written notice specifying what is needed to rectify it is handed to him there and then, he is not, as a rule, so inclined to procrastinate or to argue the question as in the case where nothing is said to him at the time, and his first intimation is in the form of an order from headquarters a week or so later.

All of the notices served by the inspectors have apparently been taken seriously, and I feel safe in asserting that 98 per cent. of them have or are being complied with.

As a case in point: Inspector Wright, upon reinspection duties at Cairns a few days ago, found that of seventeen notices served by Inspector Young, for the elimination of lead beer pipes in hotels, sixteen had been complied with, and that the outstanding hotelkeeper had placed an order for the work.

For the small remainder of actual wrongdoers the Acts provide effective, if drastic, corrective powers.

Respectfully submitted,
H. W. PETHERICK,
Chief Food Inspector.

To the Commissioner of Public Health.

DEPARTMENT OF PUBLIC HEALTH, QUEENSLAND.

DIVISION OF FOOD INSPECTION.

RECAPITULATION.

Class of Premises.	INSPECTIONS.			Remarks
	Primary.	Reinspections.	Total.	
Warehouses	47	..	47	Including Bond Stores and Wholesale distributors.
General Stores	192	..	192	Including large and small Grocers, etc.
Bakehouses	89	4	93	Including Cake and Biscuit Factories
Butcheries	69	10	79	Including Small-goods Rooms and Meat Works
Beverage Factories	88	8	96	Including Breweries, Aerated Water and Cordial Factories
Food Factories	100	15	115	Including Meal Mills, Condiment, Presering, Canning, Curing, and Confectionery Works, and Ice-cream Factories
Hotels	432	99	531	Including Town and Country Clubs
Refreshment Rooms	153	..	153	Including Fruit and Confectionery
Restaurants	154	122	276	Including Fish and Oyster Saloons and Boarding Houses
Chemists' Shops	16	..	16	Including Wholesale and Retail Establishments
Markets	59	2	61	Including Fish, Fruit, and Vegetable Markets and Cold Stores
Special	99	..	99	Including Auction Rooms, River Wharves, and Night Patrols
Totals	1,498	260	1,758	

Notices Served.

During the six months under review 36 written notices upon occupiers of premises in which food was prepared or stored for sale requiring certain alterations and improvements were issued from head office, and 581 notices served by food inspectors upon the spot.

LEGAL SAMPLES FROM 1ST JULY, 1912, TO 30TH JUNE, 1913.

No.	Article.	Number of Adulteration.	Total Submitted.
1	Bread	0	8
2	Honey	0	1
3	Ice-creams	11	20
4	Mincemeats	1	2
5	Jam	0	3
6	Milk	56	413
7	Pies, Hot	0	2
8	Sausages	1	1
9	Vinegar	1	1
10	Whisky	16	20
	Total	86	471

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* For statistical purposes, and in order to ensure completeness, in above statement of legal samples procured for analysis, as well as in the following tables relating to number of prosecutions taken and foodstuffs condemned, are included the figures for the first six months of the fiscal year, during which period food operations were conducted by the Department's staff of general inspectors, working under the direction of the Chief Sanitary Inspector, Mr. John Simpson.

UNOFFICIAL SAMPLES FOR YEAR ENDING 30TH JUNE, 1913.

No.	Article.	Number of Samples.	No.	Article.	Number of Samples.
1	Arrowroot	8		Brought forward	223
2	Aerated Waters	9			
3	Beer	53	25	Hose, Rubber	2
4	Butter	13	26	Jelly Crystals	4
5	Cordials, Compound	2	27	Jam	5
6	Caramel	2	28	Lemon Squashes	14
7	Cornflour	3	29	Lard	6
8	Crab, Canned	8	30	Milk, Condensed	50
9	Custard Creams	5	31	Malt Coffee	1
10	Cocoa	4	32	Oils (Edible)	5
11	Cordials	11	33	Oils (Camphorated)	1
12	Cream, Canned	6	34	Oatmeal	1
13	Essences	43	35	Pepper	11
14	Eucalyptus Oil	2	36	Pickles	1
15	Egg Powder	2	37	Peas, Dried	12
16	Fish, Fresh	6	38	Preservatives	3
17	Fish, Tinned	28	39	Rum	2
18	Flours	4	40	Sauce	17
19	Ginger	2	41	Sweets (Confectionery)	7
20	Honey	1	42	Syrups, Pure Fruit	6
21	Glaxo	1	43	Tonic Waters	2
22	Gelatine	4	44	Wine	5
23	Glycerine	2	45	Vinegar	3
24	Gums, Chewing	4	46	Miscellaneous	9
	Carried forward	223		TOTALS	390

FOODSTUFFS CONDEMNED AND DESTROYED AS UNFIT FOR HUMAN CONSUMPTION FOR YEAR ENDING 30TH JUNE, 1913

A.—Metropolitan Area.

Article.	Quality.	Weight.			
		Tons.	cwt.	qr.	lb.
Apples, Evaporated	26 cases	0	11	1	12
Apricots	10 cases	0	5	0	0
Bananas	379 crates	114	0	0	0
Bananas	11 cases	0	11	0	0
Bananas	242 bunches	3	0	0	0
Biscuits	1 box	0	0	0	2
Barley	36 tins	0	0	1	8
Cabbages	3 cases 10 bags	0	9	0	0
Cauliflowers	27 dozen	0	14	2	0
Cocoa	2½ cases	0	2	2	0
Cheese	23 cheeses	0	1	1	20
Crab, Canned	1,341 tins	0	11	2	23
Cake	6 boxes	0	0	0	12
Confectionery	..	1	15	3	6
Cordials	30 bottles	0	0	2	4
Chillies in Liquid Acid	4 casks	0	0	0	8
Cigarettes	1 box	0	0	0	5
Currants	2 cases	0	1	0	0
Dates	4 boxes 21 pkts.	0	3	1	0
Eggs	75 dozen	0	2	0	0
Egg Powder	5 tins	0	0	0	2½
Food, Infants'	96 bottles	0	0	1	8
Figs	10 boxes	0	0	0	10
Fish, Canned	1,018 tins	0	7	1	13
Fish, Salmon	9 cases	0	6	1	20
Fish, Ling, Cured	60 cases	2	0	0	0
Flaked Cocoanut	3 cases	0	3	0	0
Fruit	6 cases	0	3	0	0
Groats	120 tins	0	1	0	8
Ham	2 cases	0	2	0	0
Jelly Crystals	1 box	0	0	0	7
Jams and Canned Fruit	5,682 tins	2	3	1	5
Milk, Fresh	5 gallons	0	1	0	0
Milk, Condensed	12,949 tins	6	16	1	5
Muscatels	46 packets	0	0	1	18
Mustard	14 tins	0	0	3	14
Meat, Corned	..	0	2	2	10
Nuts	25 cases	0	12	2	0
Peaches, Dried	1 case	0	0	1	0
Peas, Dried	83 cases	2	13	1	6
Pumpkins	..	1	8	0	0
Pickles	1 bottle	0	0	0	2
Pudding, Christmas	6 boxes	0	0	0	10
Potatoes	24 bags	1	6	0	0
Raisins	15 packets	0	0	0	15
Rabbits	1 case	0	1	0	0
Squash, Lemon	14 bottles	0	0	0	20
Sauce	25 bottles	0	0	0	12½
Shortbread	6 boxes	0	0	0	5
Wheat, Buck	1 bag	0	0	0	2
TOTAL	..	140	19	0	13

FOODSTUFFS CONDEMNED AND DESTROYED AS UNFIT FOR HUMAN CONSUMPTION FOR YEAR ENDING 30TH JUNE, 1913—*continued.*

B.—Country.

Article.	Quality.	Weight.			
		Tons.	cwt.	qr.	lb.
Beef, Corned	6 tins	0	0	0	6
Cocoa	5 tins	0	0	0	2½
Cheese	3 tins	0	0	0	3
Cocoa and Milk	3 tins	0	0	0	3
Coffee and Milk	18 tins	0	0	0	18
Chocolate Milk	4 tins	0	0	0	4
Cream	10 tins	0	0	0	10
Crab, Canned	4 tins	0	0	0	4
Dates	19 packets	0	0	0	19
Fruit	10 cases	0	5	0	0
Groats	24 tins	0	0	0	24
Fruits, Canned	9 tins	0	0	0	18
Fish, Canned	598 tins	0	3	2	6
Ham	1 piece	0	0	0	4
Hops	6 packages	0	0	0	3
Infants' Food	92 tins	0	0	3	8
Jam	135 tins	0	2	0	25
Meat, Tinned	25 tins	0	0	0	25
Milk, Condensed	328 tins	0	2	3	18
Malt and Coffee	223 tins	0	2	0	0
Prunes	15 cases	0	3	3	0
Pepper	130 tins	0	0	1	5
Potatoes	2 bags	0	2	2	0
Powder, Egg	9 tins	0	0	0	4½
Sundries	4 packages	0	0	0	4
Sugar	1 bag	0	0	0	25
Soup	3 tins	0	0	0	3
Tomatoes	3 tins	0	0	0	6
Tongue	6 tins	0	0	0	6
Vegetables, Cooked	60 tins	0	1	0	8
TOTAL	..	1	5	3	10

C.—Townsville and North Queensland.

Article.	Quality.	Weight.			
		Tons.	cwt.	qr.	lb.
Apricots	19 cases	0	9	2	0
Butter	1 parcel	0	0	0	15
Beef loaf	28 tins	0	0	1	0
Cake	6 tins	0	0	0	6
Cordials	33 bottles	0	0	2	10
Cocoa	144 tins	0	0	1	10
Confectionery	183 boxes	0	2	3	7
Chocolates	9 tins	0	0	0	9
Currants	8 boxes	0	3	2	4
Dates	5 packets-boxes	0	4	0	0
Duck, Bombay	44 tins	0	0	1	16
Essences	6 bottles	0	0	0	0¾
Figs	6 boxes	0	0	0	3
Fish and Meat, Canned	327 tins	0	2	2	26
Fruit, Canned	21 tins	0	0	1	14
Grape Nuts	19 packets	0	0	0	19
Ham	2 ham	0	0	0	14
Jam	149 tins	0	2	0	1
Luncheon Paste	29 bottles	0	0	0	7
Lemonade Crystals	240 bottles	0	0	3	6
Milk, Condensed	13 tins	0	0	0	13
Nuts, Pea	6 pounds	0	0	0	6
Potatoes	1 bag	0	1	0	0
Peas	14 packets	0	0	0	14
Powder, Baking	63 tins	0	0	0	16
Peaches, Dried	3 cases	0	1	0	0
Pepper	600 tins	0	3	2	6
Pickles	7 jars	0	0	0	14
Raisins	26 packets	0	0	0	26
Sundries	20 tins	0	0	0	20
Sausages	21 tins	0	0	0	21
Water, Soda	6 bottles	0	0	0	6
TOTAL	..	1	15	0	2

Prosecutions for Milk Adulteration from 1st July, 1912, to 30th June, 1913.

No.	Date.	Place.	Basis of Prosecution.	Fines.			Costs.		
				£	s.	d.	£	s.	d.
1	4 July, 1912 ..	Brisbane	Added water 17 per cent.	27	7	8	2	12	4
2	4 July, 1912 ..	Brisbane	Added water	4	10	6	0	9	6
3	4 July, 1912 ..	Brisbane	Added water	4	10	6	0	9	6
4	4 July, 1912 ..	Brisbane	Added water 15 per cent.	15	0	0	0	4	4
5	4 July, 1912 ..	Brisbane	Added water 8 per cent.	5	0	0	0	10	4
6	19 July, 1912 ..	Brisbane	Added water 6 per cent.	5	0	0	3	4	6
7	30 July, 1912 ..	Brisbane	Added water 7 per cent.	7	10	0	0	10	4
8	1 August, 1912 ..	Brisbane	Added water 13 per cent.	3	3	0	2	17	8
9	8 August, 1912 ..	Brisbane	Added water 59 per cent.	14	9	8	0	10	4
10	13 August, 1912 ..	Brisbane	Added water 52 per cent.	17	7	8	2	12	4
11	19 August, 1912 ..	South Brisbane ..	Deficient milk fat 27·3 per cent. ..	5	0	0	0	10	4
12	29 August, 1912 ..	Brisbane	Added water 20 per cent.	30	0	0	2	12	4
13	29 August, 1912 ..	Brisbane	Added water 14 per cent.	10	0	0	2	12	4
14	12 September, 1912	South Brisbane ..	Added water 22 per cent.	10	0	0	0	3	6
15	27 October, 1912 ..	Woody Point	Added water 8 per cent.	5	0	0	0	3	6
16	9 December, 1912	South Brisbane ..	Added water 19 per cent.	10	0	0	0	3	6
17	9 December, 1912	South Brisbane ..	Added water 8 per cent.	10	0	0	0	10	4
18	9 December, 1912	South Brisbane ..	Added water 4 per cent.	7	0	0	0	3	6
19	9 December, 1912	South Brisbane ..	Added water 6 per cent.	8	0	0	0	10	4
20	10 December, 1912	South Brisbane ..	Added water 18 per cent.	20	0	0	0	3	6
21	10 December, 1912	South Brisbane ..	Added water 5 per cent.	5	0	0	0	3	6
22	10 December, 1912	South Brisbane ..	Added water 4 per cent.	2	7	8	2	13	4
23	12 December, 1912	Brisbane	Added water 9 per cent.	9	16	6	0	3	6
24	3 January, 1913	South Brisbane ..	Deficient milk fat 24·2 per cent. ..	2	0	0	2	12	4
25	10 February, 1913	South Brisbane ..	Added water 5 per cent.	5	0	0	0	10	4
26	10 February, 1913	South Brisbane ..	Deficient milk fat 27·3 per cent. ..	2	0	0	0	3	6
27	18 February, 1913	South Brisbane ..	Added water 10 per cent.	5	0	0	0	3	6
28	5 March, 1913 ..	South Brisbane ..	Added water 17 per cent.	15	0	0	2	5	6
29	1 April, 1913 ..	South Brisbane ..	Added water 8 per cent.	5	0	0	0	3	6
30	20 April, 1913 ..	South Brisbane ..	Added water 11 per cent.	4	0	0	0	10	4
31	28 April, 1913 ..	South Brisbane ..	Added water 11 per cent.	8	0	0	0	5	6
32	28 April, 1913 ..	South Brisbane ..	Added water 6 per cent.	8	0	0	0	12	4
33	8 May, 1913 ..	South Brisbane ..	Added water 15 per cent.	12	0	0	0	3	6
34	8 May, 1913 ..	South Brisbane ..	Added water 15 per cent.	8	0	0	0	3	6
35	8 May, 1913 ..	South Brisbane ..	Added water 25 per cent.	10	0	0	2	3	6
36	20 May, 1913 ..	Bundaberg	Added water	1	0	0	2	7	4
37	23 May, 1913 ..	Maryborough	Added water 17 per cent.	5	0	0	2	5	6
38	23 May, 1913 ..	Brisbane	Deficient milk fat 42·4 per cent. ..	3	0	0	2	5	6
39	23 May, 1913 ..	Brisbane	Deficient milk fat 15·1 per cent. ..	3	0	0	2	12	4
40	29 May, 1913 ..	South Brisbane ..	Added water 34·4 per cent. ..	10	0	0	2	7	4
41	2 June, 1913 ..	South Brisbane ..	Added water 10 per cent.	5	0	0	0	3	6
			Total	£317	3	2	£46	13	6

Prosecutions for Refusing to Sell, from 1st July, 1912, to 30th June, 1913.

No.	Date.	Place.	Basis of Prosecution.	Fines.			Costs.		
				£	s.	d.	£	s.	d.
1	5 December, 1912	South Brisbane ..	Refusing to sell	5	0	0	2	5	6
2	10 December, 1912	South Brisbane ..	Refusing to sell	5	0	0	0	3	6
3	10 February, 1913	South Brisbane ..	Refusing to sell	2	0	0	2	5	6
4	13 March, 1913 ..	South Brisbane ..	Refusing to sell	7	14	6	2	5	6
5	13 March, 1913 ..	South Brisbane ..	Refusing to sell	7	14	6	2	5	6
6	10 April, 1913 ..	Brisbane	Refusing to sell	10	0	0	0	3	6
7	22 May, 1913 ..	Brisbane	Refusing to sell	12	0	0	0	3	6
			Total	49	9	0	£9	12	6

Prosecutions for Using Rag to Tighten Milk Can Lids.

No.	Date.	Place.	Fines.			Costs.		
			£	s.	d.	£	s.	d.
1	10 February, 1913	South Brisbane	1	0	0	0	3	6
2	27 March, 1913 ..	Brisbane	3	0	0	2	5	6
3	27 March, 1913	Brisbane	4	0	0	0	3	6
4	8 April, 1913	Brisbane	1	14	6	2	5	6
5	8 April, 1913	Brisbane	1	14	6	2	5	6
6	9 May, 1913	Ipswich	0	5	0	2	10	6
7	29 May, 1913	South Brisbane	0	5	0	2	10	6
		Total	£11	19	0	£12	4	6

PROSECUTIONS FOR LIGHT WEIGHT BREAD, 1ST JULY, 1912, TO 30TH JUNE, 1913.

No.	Date.	Place.	Fine.			Costs.		
			£	s.	d.	£	s.	d.
1	13 August, 1912	Brisbane	3	0	0	0	10	4
2	13 August, 1912	Brisbane	2	16	0	2	11	8
3	15 August, 1912	Brisbane	5	0	0	2	16	6
4	15 October, 1912	Brisbane	4	18	0	0	3	6
		TOTAL	15	14	0	6	2	0

OTHER PROSECUTIONS.

No.	Date.	Place.	Basis of Prosecution.	Fine.			Costs.		
				£	s.	d.	£	s.	d.
1	9 May, 1913	Ipswich	Whisky adulterated	2	0	0	2	5	6
2		Brisbane	Wrong labelling	1	0	0	0	3	6
3		Brisbane	Refusing inspection, Section 107	3	0	0	0	3	6

VISITS BY INSPECTORS TO COUNTRY TOWNS.

Date.	Place.	Inspector.	Purpose of Visit.
16-17 June, 1913	Ayr	Stewart	Food inspection
16-17 June, 1913	Ayr	Wright	Food inspection
21-22 May, 1913	Atherton	Young	Food inspection
18 June, 1913	Brandon	Young	Food inspection
12 Apr., 1913	Beenleigh	Beaver	Food inspection and liquor testing
12 Apr., 1913	Beenleigh	Stewart	Food inspection and liquor testing
23-28 Mar., 1913	Bundaberg	Beaver	Food inspections, bread weighing, liquor testing, and milk prosecutions
20-22 May, 1913	Bundaberg	Beaver	Milk prosecutions
23-26 Mar., 1913	Bundaberg	Mason	Food inspection, bread weighing and liquor testing, milk sampling
6 Feb., 1913	Bribie Island	Mason	Food inspection
17 May, 1913	Boonmoo	Young	Food inspection
19 May, 1913	Biboorha	Young	Food inspection
29-30 June, 1913	Barcaldine	Young	Food inspection
11 June, 1913	Colinton	Beaver	Food inspection
20-28 June, 1913	Charters Towers	Chief Inspector Petherick	Food inspection
20-28 June, 1913	Charters Towers	Stewart	Food inspection
3-5 May, 1913	Croydon	Young	Food inspection
9 May, 1913	Charleston	Young	Food inspection
14-16 May, 1913	Chillagoe	Young	Food inspection
22-31 May, 1913	Cairns	Young	Food inspection
12 May, 1913	Einasleigh	Young	Food inspection
10 May, 1913	Forsayth	Young	Food inspection
6 May, 1913	Golden Gate	Young	Food inspection
8 May, 1913	Georgetown	Young	Food inspection
1 May, 1913	Gladstone	Beaver	Food inspection and liquor testing
1 May, 1913	Gladstone	Mason	Food inspection and liquor testing
25 Mar., 1913	Gympie	Beaver	Food inspection and milk sampling
25 Mar., 1913	Gympie	Mason	Food inspection and milk sampling
25-31 May, 1913	Gympie	Beaver	Food inspection and milk sampling
25-31 May, 1913	Gympie	Mason	Food inspection and milk sampling
19-20 June, 1913	Hughenden	Young	Food inspection
19-20 June, 1913	Hughenden	Wiseman	Food inspection
20 May, 1913	Herberton	Young	Food inspection
25-26 Feb., 1913	Ipswich	Stewart	Food inspection, milk sampling
9-16-19-28 May, 1913	Ipswich	Stewart	Liquor testing, milk prosecutions
22 Apr., 1913	Ipswich	Stewart	Liquor testing
25-26 Feb., 1913	Ipswich	Beaver	Milk and liquor sampling
18 Apr., 1913	Ipswich	Beaver	Laying information *re* liquor cases
25-27 June, 1913	Longreach	Young	Food inspection
5 June, 1913	Lucinda Point	Young	Food inspection
13 May, 1913	Lynbrook	Young	Food inspection
13 May, 1913	Mount Surprise	Young	Food inspection
17-19 May, 1913	Mareeba	Young	Food inspection
3 June, 1913	Mossman	Young	Food inspection
4 June, 1913	Mourilyan Harbour	Young	Food inspection
22-26-27 Mar., 1913	Maryborough	Mason	Milk sampling and food inspection
29 May, 1913	Maryborough	Mason	Milk prosecutions
22-26-27 Mar., 1913	Maryborough	Beaver	Milk sampling and food inspection
29 Apr., 1913	Maryborough	Beaver	Milk prosecutions
23 May, 1913	Maryborough	Beaver	Milk prosecutions
2-3 May, 1913	Maryborough	Mason	Milk prosecutions

VISITS BY INSPECTORS TO COUNTRY TOWNS—*continued.*

Date.	Place.	Inspector.	Purpose of Visit.
3 May, 1913	Mount Morgan	Beaver	Milk sampling
3 May, 1913	Mount Morgan	Mason	Milk sampling
16 June, 1913	Mount Morgan	Beaver	Laying information *re* milk prosecutions
1-2 May, 1913	Normanton	Young	Food inspection
20 Feb., 1913	Nundah	Sanderson	Milk sampling
30 Apr., 1913	Pialba	Mason	Liquor testing
30 Apr., 1913	Pialba	Beaver	Liquor testing
17 May, 1913	Peteford	Young	Food inspection
2 June, 1913	Port Douglas	Young	Food inspection
2 May, 1913	Rockhampton	Beaver	Milk sampling
2 May, 1913	Rockhampton	Mason	Milk sampling
17 June, 1913	Rockhampton	Beaver	Laying information *re* milk prosecutions
25 Feb., 1913	Sandgate	Chief Inspector Petherick	Milk sampling
25 Feb., 1913	Sandgate	Mason	Milk sampling
25 Feb., 1913	Sandgate	Sanderson	Milk sampling
19 Apr., 1913	Stanthorpe	Stewart	Milk sampling
24-29 Apr., 1913	Thursday Island	Young	Food inspection
21 May, 1913	Tolga	Young	Food inspection
7-17 June, 1913	Townsville	Young	Food inspection
30 May to 18 June, 1913	Townsville	Chief Inspector Petherick	Food inspection
7-14 June, 1913	Townsville	Wright	Food inspection
7-14 June, 1913	Townsville	Stewart	Food inspection
16-28 June, 1913	Townsville	Cottle	Food inspection
14-17 Apr., 1913	Toowoomba	Beaver	Food inspecton and milk sampling
14-16 Apr., 1913	Toowoomba	Stewart	Food inspection and milk sampling
7 May, 1913	Toowoomba	Stewart	Food inspection
23-24 June, 1913	Winton	Wiseman	Food inspection
23-24 June, 1913	Winton	Young	Food inspection
16 Mar., 1913	Wynnum	Stewart	Milk sampling
27 Apr., 1913	Wynnum	Stewart	Milk sampling
17-18 Apr., 1913	Warwick	Stewart	Food inspection and milk sampling
7 May, 1913	Wallangarra	Stewart	Food inspection

APPENDIX J.

REPORT ON MOSQUITO WORK IN BRISBANE.

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REPORT BY ASSISTANT INSPECTOR COOLING ON MOSQUITO WORK IN BRISBANE.

I.—PHYSICAL CHARACTERS.

The city of Brisbane, along with its suburbs, measures about 8 miles by 5 miles, and contains a population of about 145,000. It is traversed by the serpentine Brisbane River, which originates from a hilly region 24 miles above the city. On the lower side of the river the banks, although high in other parts of the river course, are only a few inches above ordinary neap tides, and lower than the level of spring tides.

The city proper stands about 58 feet above sea level in 27 deg. 28 min. 3 sec. south latitude and 153 deg. 6 min. 15 sec. east longitude. Its climate is that of sub-tropical countries, closely resembling that of Southern California—that is to say, it enjoys one of the mildest temperatures in the world. The average temperature in summer is about 92 F. and that of winter about 59 F. The lowest glass reading made last year was 23 F.

The rainy weather is from January till March, but rain falls to a lesser degree in the other seasons. The average annual rainfall for Brisbane is about 47 inches.

The soil is a clayey one, and consequently the water collections about the city are more or less permanent, except in the very dry weather. In the city itself, there are no water collections, and though the roads have been built up, the land has been elevated accordingly. Any water that may collect is at once taken away through the sewers.

Beyond a mile radius of the General Post Office the town in some parts gets flat, and is subject to frequent tidal floodings. Watercourses contaminated by sewage are also present. Generally speaking, the water collections about Brisbane are all permanent, being divided into salt and fresh. The former are to be found about the river and its tributaries, and the latter in higher country—viz., water flowing through ravines and natural watercourses. Temporary collections of water usually do not remain for a sufficient length of time to breed mosquitoes, and the only way in which rain affects our breeding-places is by distributing permanent breeding-places over larger areas and by forming numerous isolated puddles about the edges of the swamps. Again, rain tends to fill salt swamps just before spring tides, when a great amount of the water has evaporated.

II.—CLASSIFICATION OF BREEDING-PLACES.

The clayey character of the soil has already been alluded to. Notwithstanding this, it may be said that in Brisbane direct rainfall resting on these stiff clays is not in any way connected with mosquito-breeding.

The mosquito-breeding places are primarily divided into two classes—viz. (1) natural and (2) artificial waters. The former may be subdivided into (*a*) polluted waters and (*b*) pure waters. In considering the former it is very necessary to note that all watercourses in their natural state about Brisbane contain at least one kind of our indigenous larvivorous fish. These fish, under natural conditions, play a very important rôle in mosquito reduction, not so much against the typical foul-water breeder, *Culex fatigans*, but as against *Anophelinæ*. The members of this sub-family *Anophelinæ* are universally known to be clean-water breeders, breeding in small puddles of rain water, especially water standing amongst grassy situations. If these waters are made uninhabitable for fish by sewage contamination, as in the case of sewers and septic tanks discharging into them, it tends to promote the propagation of *Culex fatigans,* Wied.

(*b*) This includes mainly salt water. Typical breeding-places exist about Brisbane River and its tributaries. In numerous places about their banks tracts of low flat land are subject to frequent flooding by our spring tides. Water is left on these stretches of land to stagnate after ebb tide. As the water evaporates more and more, these form in their basins a series of small ponds and puddles in which green algæ grow, and which serve as ideal breeding-places for *Culicelsa vigilax*, Skuse.

(2) This comprises collections of water in artificial receptacles—viz., tanks, roof gutters, rubbish tips, and other innumerable places directly about habitations.

III.—MOSQUITO WORK.

By far the most prevalent mosquito in Brisbane is *Culex fatigans,* Wied., commonly known as the "house mosquito," the female of which is capable of transmitting the parasite of filariasis. Further, recent observations show that this same mosquito is looked upon with suspicion in its connection with dengue fever.

C. fatigans is a most troublesome species, very strictly nocturnal in its habits, and causing much annoyance indoors. Its breeding-places are seldom found far from the abode of man, and they are thus classified as follows in range of importance:—

i. Natural watercourses into which sewers and septic tanks discharge;
ii. Septic tanks and cesspools;
iii. Liquid manure barrels;
iv. Street gully traps;
v. Rubbish bins containing water;
vi. Old tins, &c., about neglected yards.

This mosquito may therefore be taken as the typical foul-water breeder.

Fortunately, we have but few watercourses heavily polluted by sewage, as sewers generally discharge into the river. It will be seen from the attached map that these are confined to Victoria Park, Rosalie, and Dutton Park Estate. The two former are situated at the mouths of sewers, and the latter receives the discharge of the three septic tanks belonging to H.M. Prison, Diamantina Hospital, and Blind, Deaf, and Dumb Institution.

Only quite recently the local authorities have laid a sewer at Rosalie to take storm water and household drainage and also a sectional sewer at Ipswich road to take the discharge of the three septic tanks and household sewage only. It is anticipated that even this will tend to purify the existing storm watercourse to make it inhabitable for fish. It may be said here that since the sewer has been put in at Rosalie *C. fatigans* has been practically exterminated in the watercourse. The three septic tanks alluded to have been the

PLAN OF BRISBANE AND SUBURBS.

Showing the condition as regards the distribution and breeding places of Mosquitoes during the summer months.

▩ Signifies salt marshes infested principally with *Culicelsa vigilax*, and also *C. annulirostris* and *Mucidus alternans*.

▨ Signifies collections of fresh water.

〰 Signifies watercourses, &c., contaminated by sewage, infested with *Culex fatigans*.

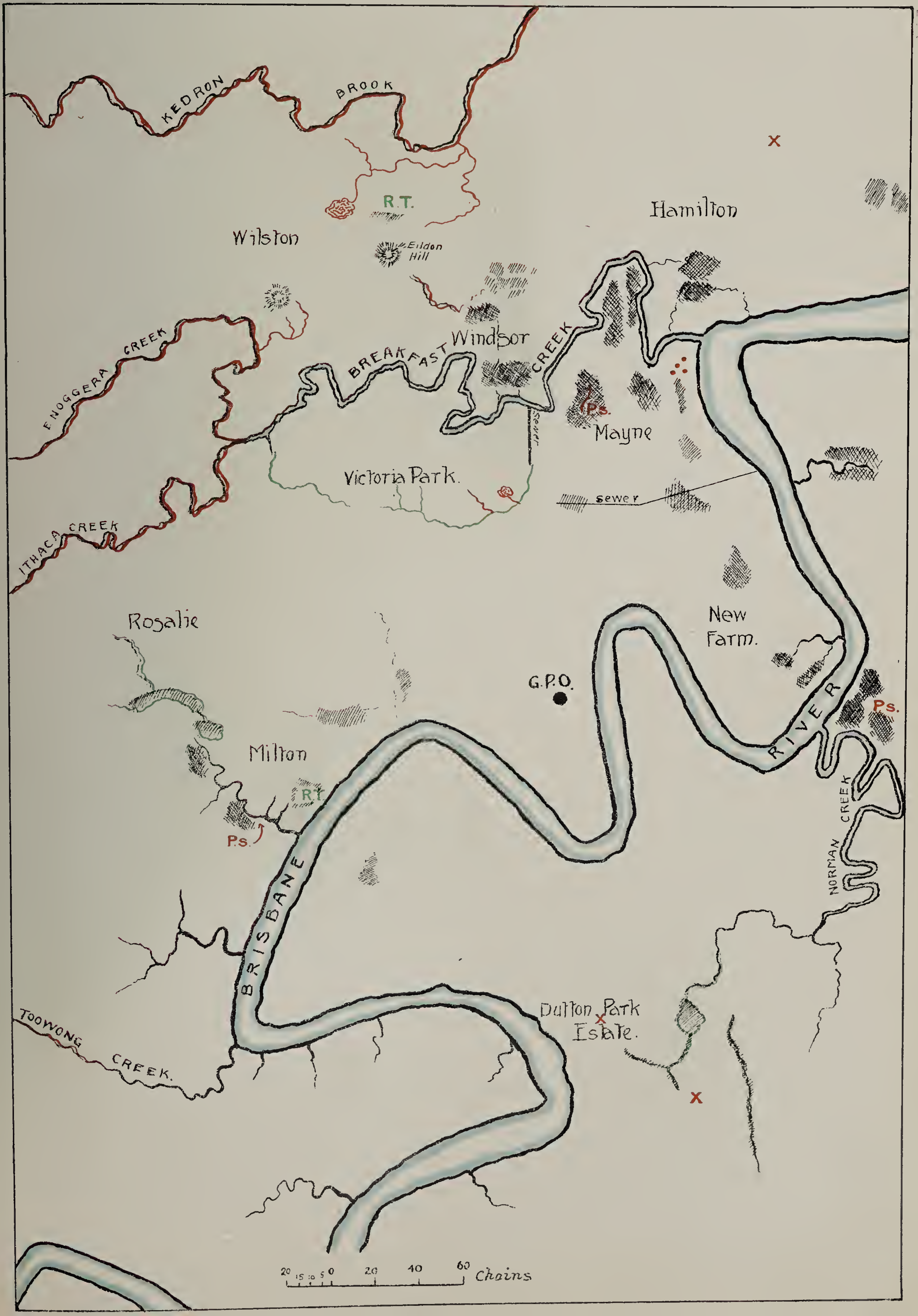
R.T Signifies rubbish tips breeding *C. fatigans*.

● Signifies temporary puddles in which *C. vittiger* was foun

〰 Signifies fresh creeks and watercourses containing fish.

Ps Salt marshes containing fish—*Pseudomugil signifer*.

× Septic tanks breeding *C. fatigans*.



cause of much annoyance to neighbouring inhabitants, in regard to the propagation of *C. fatigans* in the well siphons and siphon chambers. Upon our request to the Department of Public Works, the principal openings to and from the tanks, including inspection chambers, air bricks, and chutes have now been made mosquito-proof. Unfortunately, I find that the holes for the chains working the tipping buckets are utilised by females of *C. fatigans* as a means of ingress and egress. If there is really any possible way of screening these chain holes all difficulties would be solved. The difficulty could, perhaps, be overcome by substituting flexible wire for the chains and running it through holes merely of sufficient diameter to allow the working to and fro of the wire, and at the same time insuring a mosquito proof fit. It seems probable that the interstices of the gravel in the aerobic beds are utilised as means of ingress by mosquitoes, the eggs being deposited on the water surface and left to hatch, thus bringing the larvæ eventually through the well siphons. This statement has been demonstrated by the fact of mosquitoes being found harbouring in the stones several inches from the surface.

It is rather interesting to note that, owing to the constant petrolisation of the watercourse receiving the discharge of these septic tanks, mosquitoes have been practically driven away and forced to breed in the septic tanks. Previous to our oiling operations these tanks had never been found to be breeding mosquitoes.

The releasing of a dammed water supply used for irrigation purposes at a Chinaman's garden, Milton, has resulted in a marked reduction of *C. fatigans* about that area. The water supply in question is now under tidal influence, receiving a semi-diurnal flushing, and thus not allowing the breeding of mosquitoes.

In view of the fact that rubbish is disposed of by sea tipping, we have but few rubbish tips. They are, however, quite sufficient as regards mosquito destruction operations, and rubbish is deposited at these tips not for the sake of getting rid of it but for elevating lands, especially where there is a pool or swamp. It is somewhat exasperating, too, to find a mosquito breeding-ground being filled with tins and other water holding refuse, an example of which we have had at Milton. Notwithstanding the amount of oil applied to this particular rubbish tip, it still continued to be literally swarming with mature larvæ of *C. fatigans* seven days after each treatment; in fact, on several occasions this has received two applications of oil within seven days. Since a notice was served on the owner to cover the tins with earth and to discontinue tipping any more rubbish there, mosquito-breeding has been considerably checked.

Several mosquito-breeding pools have been filled, especially at West End, and others are in course of being filled.

Street gully traps are amongst the most important breeding places of *C. fatigans*, and consequently they have necessitated the services of two men permanently employed throughout the summer months for their weekly petrolisation. Throughout last summer 2,070 street gully traps were kept under control.

It is a very common sight to see numerous egg-rafts of *C. fatigans* floating on the oily surfaces of water in street gullies, and moreover I have often observed that they have hatched into actively mobile larvæ in spite of the remaining thin film of oil.

Liquid manure barrels are also prolific breeding-places for *C. fatigans*, and notices have been served on householders to remove or make them mosquito-proof by tight-fitting lids.

Rubbish tins containing water have not infrequently come under notice, and whenever they were found without lids, a verbal message to local authorities has always sufficed to secure rectification.

During the early part of last summer *C. fatigans* occurred in large numbers, and caused much annoyance in and around my residence. I investigated the matter, and found that the nearest breeding-ground for this species lay at a distance of 25 chains at a rubbish tip. Since this breeding-ground has been dealt with there has been a marked diminution in their numbers. It therefore would appear that *C. fatigans* will travel a distance of over a quarter of a mile, and probably more.

The breeding of *Culex fatigans* is very much reduced in the winter months, though it cannot be said that cold will check its growth to any great extent. It still propagates in sewage collections, the larval life being considerably prolonged, usually extending over a fortnight. In view of this fact, we resorted to a fortnightly petrolisation of its breeding-places, though in some cases this rule could not have been always adhered to. During last year (1912) it was found that *C. fatigans* passed the winter months both in the larval and the imago stages. They were so numerous in several districts as to render it almost impossible to sleep without nets.

Given abundant supply of sewage collections, it matters not how cold it is, *C. fatigans* will always be found.

Stegomyia fasciata, Fabr., a second species of mosquito infesting houses, is very prevalent, and it, too, is essentially a domestic insect, never breeding away from habitations. This is the dreaded yellow fever carrier, commonly known as "the tiger mosquito," *Stegomyia fasciata,* Fabricus.

S. fasciata is diurnal in its habits and an extremely annoying insect. It breeds most abundantly in rain water-tanks, water in sagged portions of roof guttering, saucers under legs of safes, ornamental shells, garden barrels, and very frequently in tin cans, &c., about houses. Any small collection of water in an artificial receptacle is subject to be utilised as a breeding-place for this pest. I have never found the larvæ in water other than artificial receptacle.

In the city, Stegomyia larvæ have been found at an altitude of 120 feet above street level, in a cistern used as a fire sprinkler. Of sixteen fire sprinklers examined in the city, about half have been found to be breeding larvæ of *S. fasciata.* Although owners were agreeable to the weekly oiling of these cisterns, it was deemed advisable to cover them so as to be mosquito proof. In Brisbane these tanks are usually capable of holding about 10,000 gallons of water. The tops of them are not covered like the ordinary domestic tank, but are provided with a low gable roof of galvanised corrugated iron; flat iron has been suggested in lieu of the corrugated, and though some tanks have been made mosquito-proof in this way, other firms have flashed the corrugated iron with lead, thereby making the tank mosquito-proof.

S. fasciata has been found to travel a distance of 5 chains. This has been demonstrated by the fact of a house being built at the above distance away from the nearest Stegomyia breeding-place. It was found that seven months afterwards the new tank had begun to act as a breeding-place for larvæ of this species.

Complaints have been received from a few householders about prevalence of mosquitoes, despite effort to destroy breeding-places. I afterwards learnt that *S. fasciata* was the culprit. The complainants stated that their tanks were screened with gauze, and yet there were still large numbers of mosquitoes. They were enthusiastic enough in preventing mosquito breeding in toilet sets, flower-pot saucers, &c., but were unaware of the fact of mosquito breeding in roof gutters. On one occasion, after a long spell of dry weather, the roof gutters of a shingle-roofed church were found half full of water and breeding innumerable *S. fasciata* larvæ. On another occasion, Stegomyia larvæ were found breeding in a South African plant, *Dracaena kookeriana.*

There is no doubt that in Brisbane *S. fasciata* bridges the winter in the larval stage. During my inspections last winter (1912) I had opportunity to prove this, and larvæ were found to breed in tanks and other collections suited for Stegomyia breeding. It must, however, be said that breeding was very slow.

The larvæ are able to resist a low temperature, for it was found that the lowest reading recorded last year was 42·8 deg. F. On one occasion I found them breeding in a butcher's water barrel, which received the effluent from the refrigerating room. The temperature of the water stood at 50 deg. F. Imagines cease to become active during the winter.

Culicelsa vigilax, Skuse.—A third species of mosquito is the cause of much annoyance in gardens and about shrubberies, but fortunately is seldom found frequenting the interior of houses. This is locally known as the "black bush" or "salt-water mosquito," *Culicelsa vigilax,* Skuse.

Though this mosquito is of the sylvan variety, it is extremely annoying to man, but so far, fortunately, it is not known to play any part in the dissemination of disease.

Salt marshes about the river are subject to frequent renewal at spring tides; it is here that *C. vigilax* is found in enormous numbers. The places where these marshes are known to exist are at Mayne, Hamilton, Windsor, New Farm, and Norman Creek.

Mayne is a stretch of low flat marshy ground, having a total water surface of about 16 acres. It is Crown land situated between two railway lines; along these lines there exists a series of borrow pits which are kept permanently filled by salt water backing up Breakfast Creek. The whole paddock is practically a large borrow pit which was utilised for the high railway embankments. On only one occasion have I seen it greatly reduced into a few small pools and puddles, at which state it only remained a few days, when it was afterwards flooded by the spring tide. It remains as large sheets of water for about a week or two after spring tides, gradually drying up by evaporation into a series of pools and puddles. As the water evaporates it tends to become more and more briny, in which *C. vigilax* delights to breed. If rain has not fallen in the meantime, the pools will gradually reduce until the next spring tide.

Great trouble has frequently been experienced in oiling such large sheets of water, especially when westerly winds are blowing, when the oil is carried to the leeward side. In such a case, a certain amount of vegetation in the water serves to break the action of winds.

Hamilton.—There is present at this place a swamp measuring about 4 acres in area. To promote the propagation of *C. vigilax,* the swamp is unfortunately overgrown with ti-tree, and in these trees imagines of this species find a place of refuge from climatic conditions.

Windsor contains a stretch of low marshy country, having a water surface of about 3 acres.

New Farm is also practically a low level country under spring tidal influence. Much work has been done here in regard to filling in, and as a great amount of marshy land belongs to the Colonial Sugar Refining Company, the engine ashes have been put to good use on these marshes.

Norman Creek is an ideal breeding-place for the salt-water mosquito. When spring tides have receded this country is nothing but a series of small deep isolated holes, each hole measuring about 7 to 12 inches in diameter. The successful oiling of a marsh of this sort thus depends on each one of these holes being treated individually.

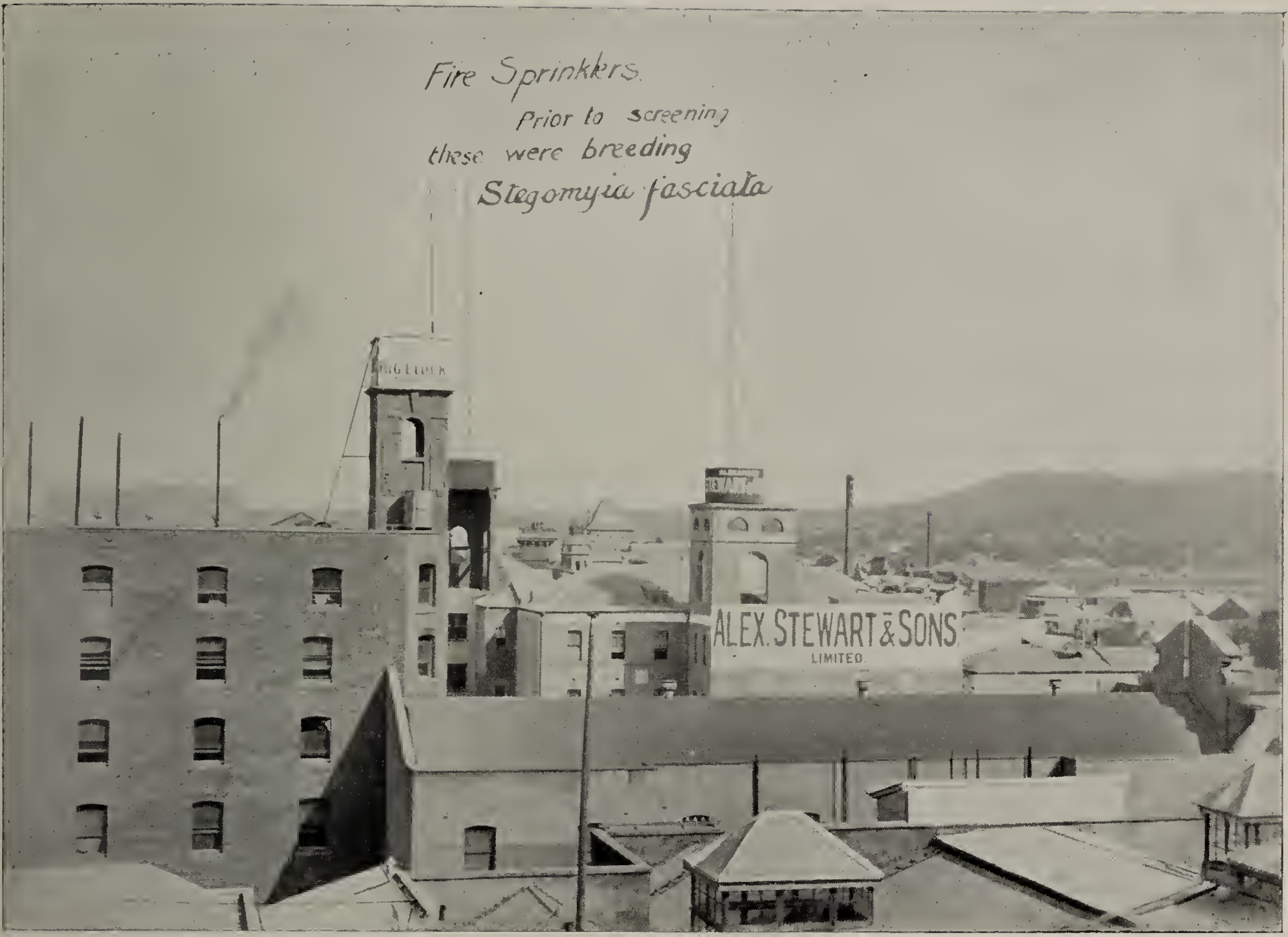
There are three marshes here, having a total area of about 20 acres.

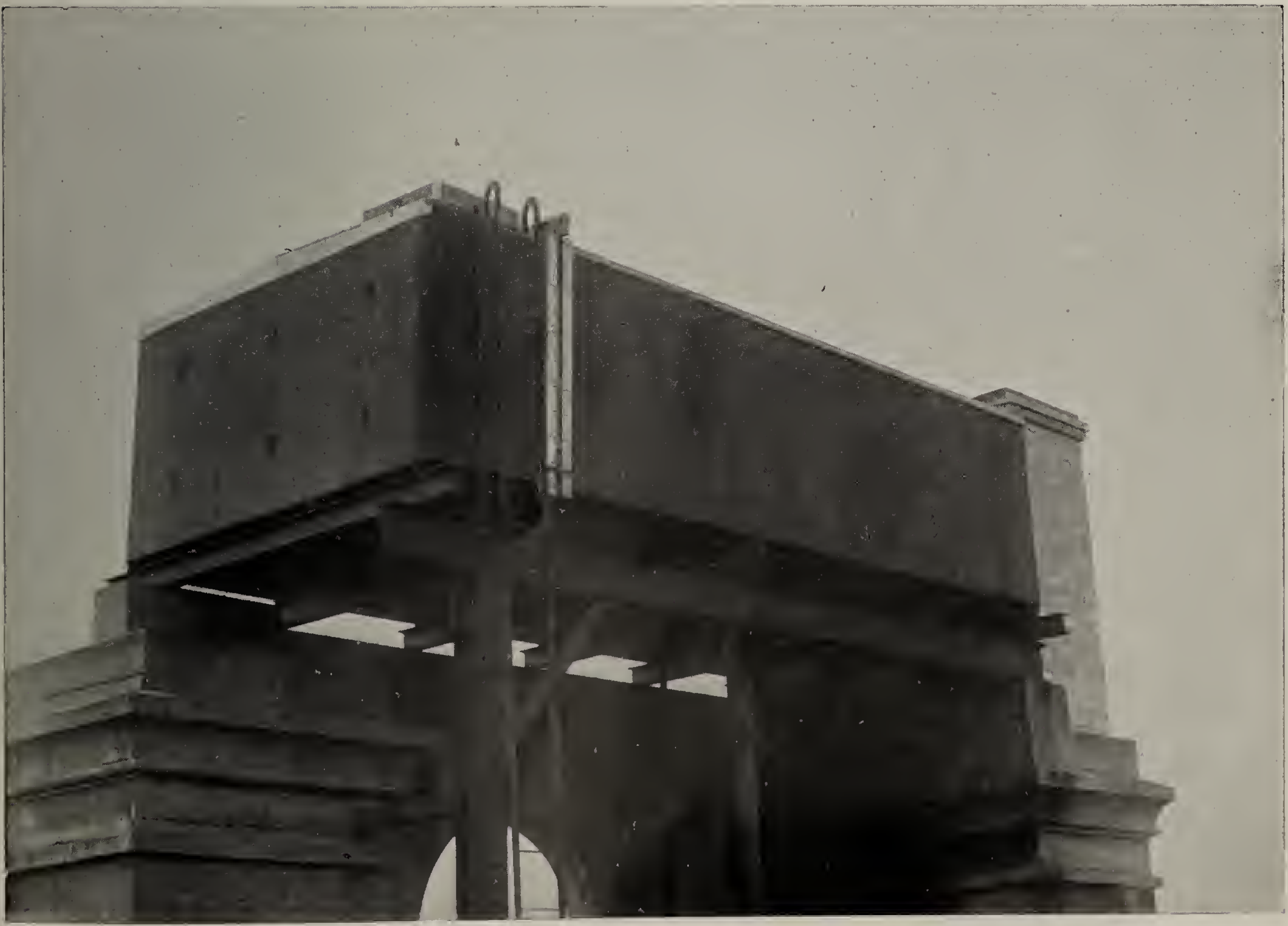
On commencement of oiling operations, 12th August, 1912, *C. vigilax* was present at Hamilton ti-tree swamp in enormous numbers, and it was almost impossible to tolerate the biting propensities of this vicious biter. A man who has camped at this swamp for many years informed me that he had to make smoke fires as a repellant against this insect.

An examination of this swamp after three successive weekly oilings showed larvæ to be very scarce, and I only noticed one female of *C. vigilax.* This led me to believe that this species bred locally; but a month later a sudden invasion occurred with a heavy north-easterly wind. It was evident that they were not the progeny which had arisen from the ti-tree swamp, for larvæ were constantly kept from reaching maturity by weekly petrolisation. There can thus be no doubt that *C. vigilax* is a migratory insect. The nearest breeding-place situated in a north-easterly direction was found at a distance of 7 miles.

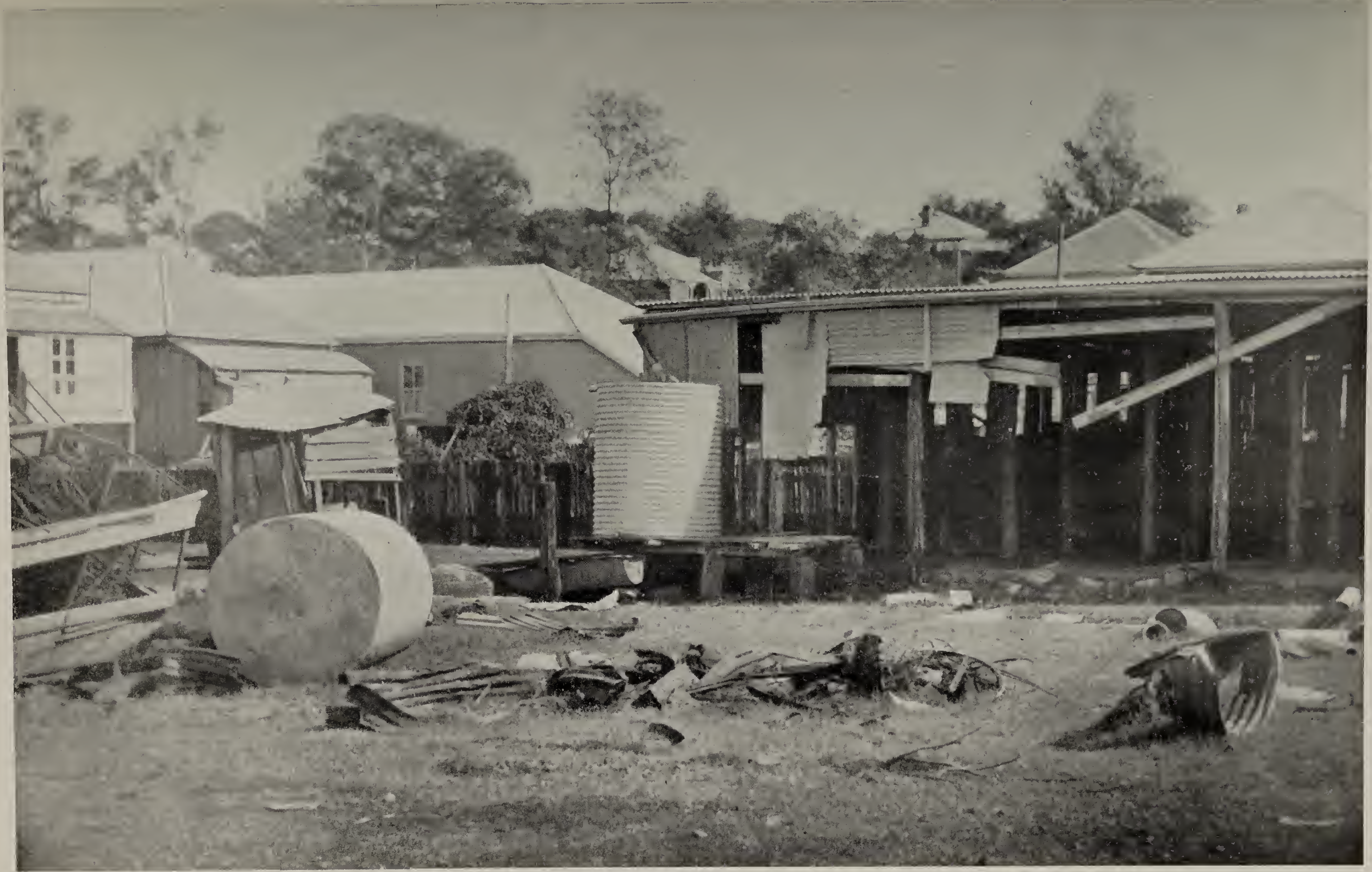
C. vigilax was found last summer on a naked hill—Eildon Hill—273 feet above and half a mile away from its breeding-ground. It was rather strange that they should be found on a hill which was devoid of trees or other resting places—viz., grass—and, moreover, they only made their appearance at sunset, retiring in the daytime.

The breeding of this mosquito seems to be greatly affected by cold. The winter months are survived by a few stray females and also by small batches of larvæ.


Fire Sprinklers.
Prior to screening these were breeding Stegomyia fasciata
ALEX. STEWART & SONS LIMITED

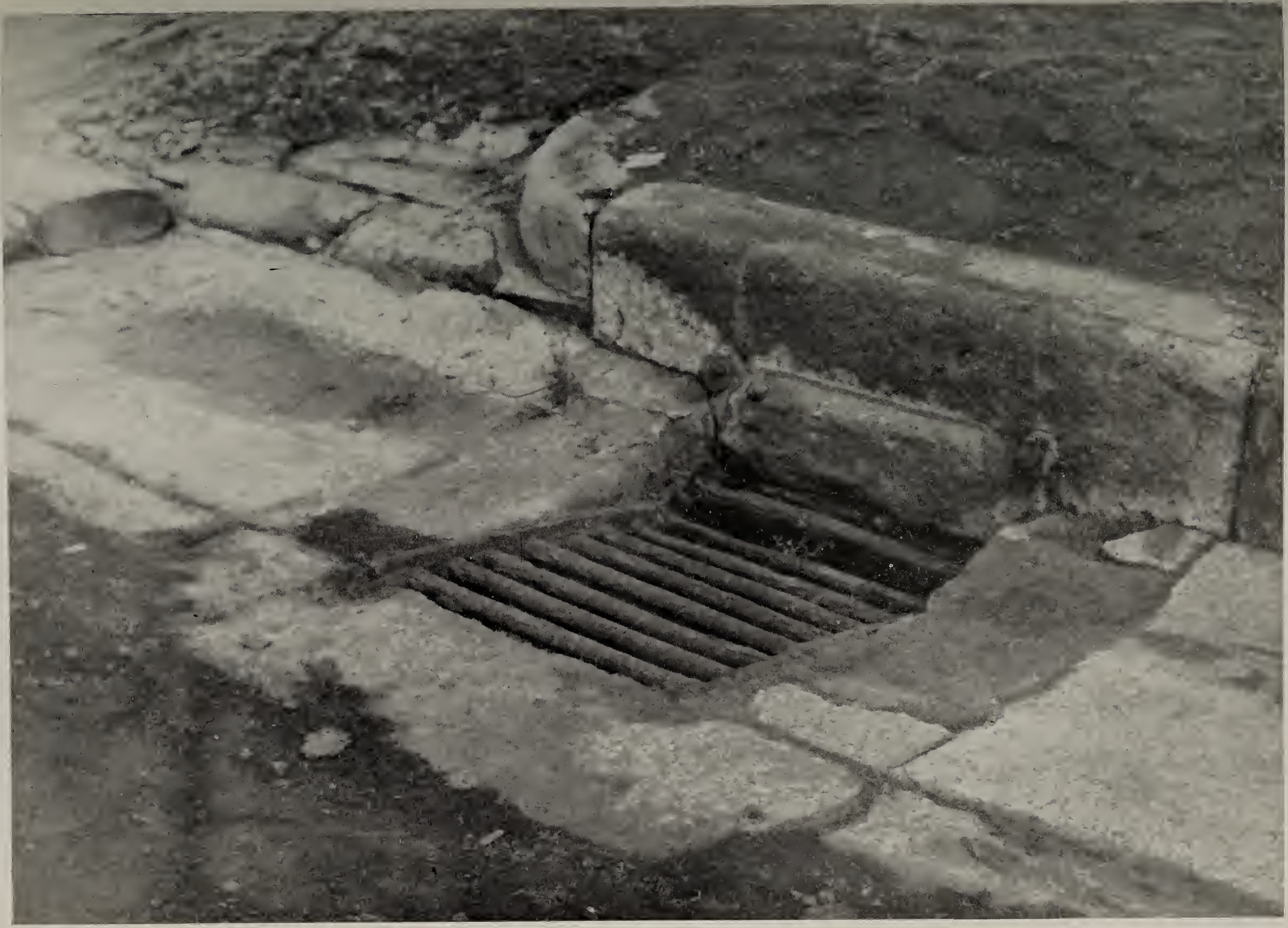


Method of Mosquito-proofing Fire-sprinklers; 120 Feet above Street Level.



Typical Breeding Places of *Stegomyia Fasciata*.

Note tank, roof-gutter, and other water-holding places.



Street Gully-trap—Typical Breeding-place of *Culex Fatigans.*

Other Species.—Other species exist about Brisbane, but they are not in sufficient numbers to constitute a nuisance. These are *Mucidus alternans,* Westwood, our "Scotch grey," or locally known about Hexham swamps in New South Wales as "Hexham grey"; *Culicelsa annulirostris,* Skuse; and *Culex vittiger,* Skuse. The two former are found in company with *C. vigilax,* while the latter has only lately been found to breed in small temporary collections of rain water.

Anophelinæ are never plentiful, and only on one occasion has *Myzorhynchus bancroftii,* Giles, been found in a house. So scarce is this species that the larvæ have never been seen, and only a few females may be found occasionally biting in scrub country.

Larvæ of *Nyssorhynchus annulipes,* Walker, are found in moderate numbers in fresh water pools collecting after rain, and it seems not unlikely that they would propagate in our freshwater creeks if it were not for the presence of fish. The latter constitute the reason for the relatively small numbers of *Anophelinæ.*

PROCEDURE IN MOSQUITO SUPPRESSION WORK.

Culex fatigans, Stegomyia fasciata, and *Culicelsa vigilax* have really been the cause of the great mosquito nuisance in and around Brisbane.

Indoors at daytime, there is *S. fasciata* to worry us, and should we take a walk through the bush outside there is *C. vigilax* to accompany us, and even on retiring at night there is *C. fatigans* awaiting its sanguinary meal.

From the practical standpoint there are really three classes of mosquitoes to be dealt with in the work of extermination in Brisbane, viz.:—(i.) *S. fasciata* or the yellow fever carrier, which only breeds about houses; (ii.) *C. fatigans* or the filaria and the dengue (?) carrier, which breeds also about houses, but preferably where sewage stagnates; and (iii.) *C. vigilax,* which breeds only in salt water.

We would not expect to get rid of *S. fasciata* by oiling swamps, and on the other hand we cannot destroy *C. fatigans* by screening tanks. Again, private enterprise is useless for the destruction of *C. vigilax* unless the breeding-places exist on private property.

ORGANISATION OF MOSQUITO SQUADS.

The mosquito brigade is thus divided into three squads, viz.:—(i.) The "domestic squad," which deals with house-to-house visitation for the reduction of *S. fasciata* and also *C. fatigans;* (ii.) the "street gully trap squad," which deals with the weekly petrolisation of street gully traps for the reduction of *C. fatigans;* and (iii.) the "salt and fresh water squad," which deals mainly with the reduction of *C. vigilax* on salt swamps and also the reduction of *C. fatigans* on sewage collections.

Domestic Squad.

The special duty of the "Domestic Squad" is that of tank inspection and also attention to other Stegomyia breeding-grounds, viz., roof gutters. Special attention was directed to tank sprinklers in the business portions of the town, for these are typical breeding-places for *S. fasciata.*

Doubt evidently existed on the part of business men as to whether mosquitoes could exist at such altitudes, but after some argument a practical demonstration settled the question.

Stegomyia larvæ have been found in roof gutters irrespective of the age of the building. When found to be in a dilapidated state a notice was served to have them repaired. New gutters were also found to be breeding mosquitoes, and in these cases the owner or occupier was generally instructed to have them cleaned out or the water released by punching a hole with a marline spike.

The "Domestic Squad" commenced operations on 6th January, 1913, and up to 30th June, 11,684 premises have been inspected, with the result that 455 tanks were found to be screened, and 11,156 not effectively screened; 357 wells and pools were inspected, and also 204 places that harboured rubbish; 2,523 notices have been despatched, and 2,997 follow-up visits made, which showed that 1,299 tanks were screened, 154 collections of rubbish removed and 95 puddles, &c., filled.

Street Gully Squad.

The "Street Gully Squad" was organised on 4th November, 1912, to oil street gullies in Brisbane and South Brisbane. This meant the weekly traversing of a network of streets. The lengths of these streets vary from 5 chains to about 3 miles, and in the city a block of buildings measuring 20 chains by 5 chains is enclosed on four sides by streets.

Half an ounce of kerosene was poured down each trap and the water agitated a little with a stick so as to facilitate the formation of the oil film. This was deemed necessary, as in some cases a thick film of rubbish, &c., was formed over the surfaces of these traps. A weekly average of 7 gallons was used in the petrolisation of some 2,070 street gully traps.

Owing to the breeding of *C. fatigans* being very much reduced, the services of the labourers were dispensed with as from 9th May last. It will be necessary to revive the work in the spring.

Salt and Fresh Water Squad.

The "Salt and Fresh Water Squad" deals with the petrolisation of the breeding-places indicated on the attached plan.

It will be seen that these swamps are considerably scattered, but they are on all sides surrounded by habitations.

Until 6th October, 1912, we had been using American petrolite, when it was found that a cheaper and more efficacious oil, Australian "Argolite," could be used. This latter is a comparatively crude oil and harmless to animals.

The consent of various business firms and private individuals was obtained to use their premises as oil depôts, to which kerosene could be despatched direct from the agents. A weekly list of oil depôts, with the number of gallons required for the next week, was sent on to the agents for the "Australian Argolite," every Thursday morning, and the oil was generally disposed of at the various places by the following Monday.

Up to 30th June, 1913, 6,484 gallons of oil were used, which yields a weekly average of 137$\frac{45}{47}$ gallons.

EFFECTS OF OILING.

As a result of our oiling throughout the summer months, I can personally state that with regard to the destruction of *C. fatigans*, comparing the two winters, mosquitoes of this species have been reduced to a minimum. Mention has been made relative to the great abundance of *C. fatigans* during the previous winter (1912).

Only a couple of females were seen throughout the recent winter. Further, to show that the cold weather had no detrimental effect on *C. fatigans* we learnt from a resident in a certain part of the city (Dutton Park Estate) that while Wilston had been free from mosquitoes, Dutton Park Estate was invaded by countless numbers of this species. It was known that in this case *C. fatigans* was breeding in a septic tank.

The reduction of *S. fasciata* is one for the householder, and is gradually being effected by tank screening, &c.

Comment has been forwarded to this office relative to the marked diminution of *C. vigilax* about Mayne, and I have also had information on the subject from householders at Albion. People in other parts of the town—Milton and Newstead—have also expressed their views on this subject in regard to the reduction of *C. fatigans* and *C. vigilax* respectively. The former had been achieved by the drainage of a dammed water supply and the latter by constant oiling of salt marshes.

IV.—EXPERIMENTS WITH LARVICIDES AND CULICIFUGES.

Several oils have been experimented with to ascertain their larvicidal qualities, and the following are the results of the examination:—

Oils were used in the standard proportion—*i.e.*, half an ounce to the square yard—on full-grown larvæ and pupæ of *Culex fatigans*, about 100 larvæ being used in each case.

Argolite, within 5 minutes rendered all pupæ motionless (but not dead) and also about 75 per cent. of larvæ very sluggish, killed the pupæ in 10 minutes and the remainder of pupæ in 20 minutes, also remainder of larvæ except 5, which were very sluggish but still alive, killed all larvæ except one in 1 hour 42 minutes, the last being killed during the night.

Petrolite within 5 minutes rendered all pupæ motionless (but not dead) and about 20 per cent. of larvæ very sluggish; killed all pupæ except one in 20 minutes, and rendered about 50 per cent. of larvæ very sluggish. Last pupæ and all larvæ except ten dead in 1 hour 42 minutes. Nineteen hours later five larvæ still alive and the remaining five during the next 24 hours.

American Gas Oil killed 20 per cent. of larvæ in 40 minutes, and the remainder, except 5, in 2½ hours, the remaining 5 were killed in 25 hours.

In comparing the above oils it will be seen that the order of efficiency is as these are respectively quoted: "Argolite," "American Gas Oil," and "Petrolite."

Some oils from the Railton Latrobe Shale Oil Company have been sent in view of utilising them as larvicides. The following are the names under which they are known:—Crude Oil, Fuel Oil, Wire Rope Grease, Spray Oil, Engine Combustion Oil, Turp Substitute, Petrol Axle Grease, Crude Spirit, Axle Oil, and Antifriction Grease.

In the case of the very crude oils, viz.:—Wire Rope Grease, &c., they fall to the bottom in a compact mass and do not diffuse over the water; when these are mixed with refined kerosene a very uneven film forms which in numerous parts allows direct openings of about 1 to 12 square inches in diameter. With reference to the Turp Substitute, though the film is very even, it will not remain on water very long, especially on a hot day.

The following are the results obtained with the best admixture of these oils:—

1st Day.—2.45 p.m., a mixture of Turp Substitute and Crude Oil in proportion of 4-1 was applied to full-grown larvæ of *Culex fatigans*; 3.30 p.m., about 20 per cent. of larvæ motionless, but not dead; 4.30 p.m., 20 per cent. of larvæ dead. The remainder unaffected by the film.

2nd Day.—9 a.m., remainder of larvæ still alive.

All these oils are useless for practical mosquito destruction purposes.

Samples of oils arrived from the Sternol Co., England, relative to their use as larvicides and culicifuges.

Sternol killed all pupæ in 1 hour 25 minutes and about 50 per cent. of larvæ in 2 hours 20 minutes; 60 per cent. of larvæ killed in 24 hours 55 minutes. Remainder of larvæ survived until three and a-half days.

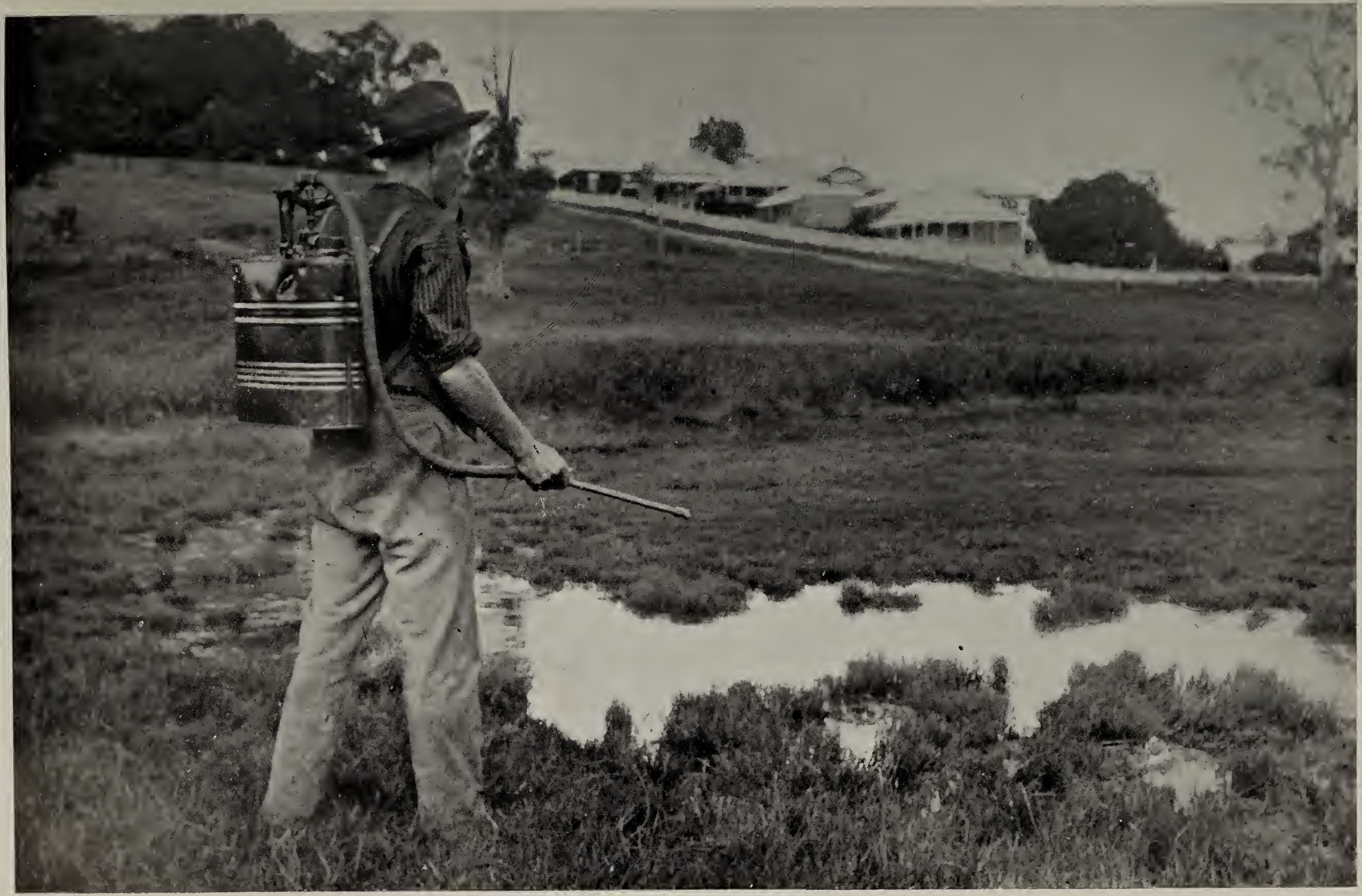
Owing to its feeble action on mosquito larvæ, and also its refined quality, it is quite useless for mosquito destruction in any tropical or subtropical country; the film also collects in minute patches and not spreading until the water is agitated.

Culicifuges.—A couple of samples of Sternol were tested as culicifuges; this was done by the cultivation of mosquitoes under artificial conditions.

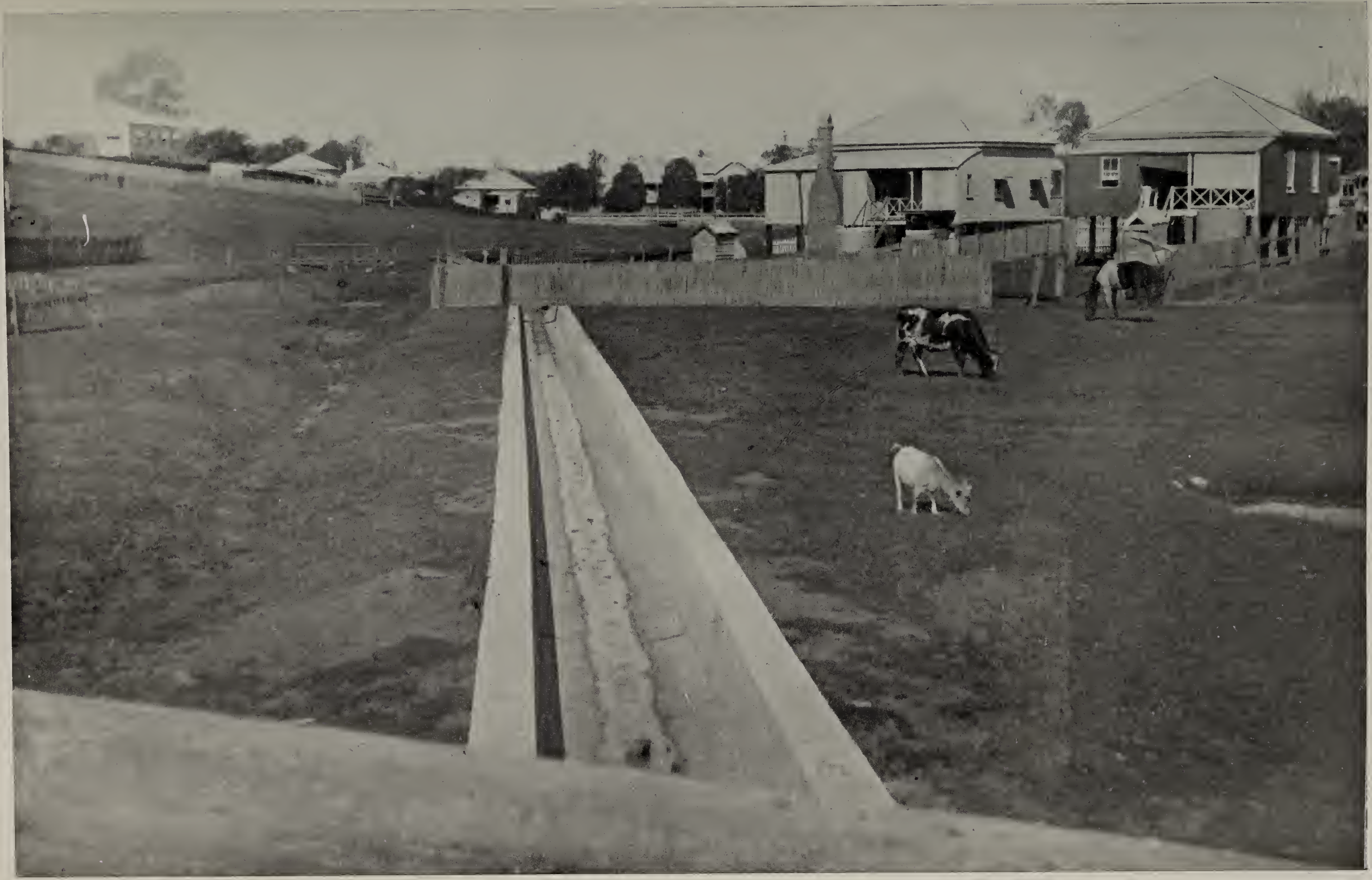
A cage was made containing *Stegomyia fasciata*, *Culicelsa vigilax*, *C. alboannulata*, and *Culicada vittiger*. In all cases the mosquitoes were bred from larvæ without having previously sucked blood. They were kept fed on dates and honey for about three weeks, after which they were tested to see if they would suck human blood. This they readily started to do. After applications of thick films of Sternol to the skin, mosquitoes were given liberty to bite.

The oil seemed to have some little effect on mosquitoes, for they were seen to insert their proboscides and withdraw them, appearing to rub the oil off the labellæ with their front pair of legs. After a couple of attempts, the above-named species were found to bite voraciously through the oil film, and in all cases, particularly *S. fasciata*, remained sucking blood until gorged.

In conclusion, it may be stated that these oils would be useless in warding off the attacks of *S. fasciata* and probably other disease-bearers.



PETROLIZATION WORK—SHOWING APPARATUS.



A Well-constructed Invert at Rosalie, Brisbane.

V.—DISTRIBUTION OF ANOPHELINÆ AND ITS RELATION TO INDIGENOUS FISHES IN SOUTHERN QUEENSLAND.

The absence of malaria in the Southern parts of this State no doubt is due, not to the climate, but to the comparative absence of the malaria-carrying *Anophelinæ*.

Firstly, in considering the breeding-places of *Anophelinæ* it must be understood that they generally prefer natural waters, *i.e.*, those standing on the ground and not in artificial receptacles. Rarely will they be found breeding in waters other than natural, and in only one instance have *Anophelinæ* been recorded in a discarded ship's tank.

Though in Brisbane there are some *Anophelinæ*, nevertheless they do not occur in such numbers as to constitute a nuisance, like those of the *Culicinæ*. In fact, the very few that do exist in Brisbane seem of the sylvan variety, and in only one instance has *Myzorhynchus bancroftii*, Giles, been captured in a dwelling. This mosquito is a very rare species, and nothing like so common as *Nyssorhynchus annulipes*, Walker.

The breeding-places of *N. annulipes* consist primarily of clean water, such as that which has originated from (i.) direct rainfall on grassy situations; (ii.) water collecting in grassy flats which has found its way there by soakage; and (iii.) water collecting in street water-channels which has originated from a leakage in water-service pipes.

The foregoing may be summarised as follows:—*N. annulipes* will breed only in clean water on the ground, and preferably that which flows through vegetation. These will not be found in company with *Culex fatigans,* as the latter breed preferably in sewage. On one occasion, however, larvæ of *N. annulipes* were found in a street gully trap along with *C. fatigans;* but this phenomenon is readily explained by the water-table having previously contained clean water in which *N. annulipes* existed, the water being washed into the gully trap by a subsequent storm.

As previously mentioned, temporary collections of water are in no way connected with the breeding of *Anophelinæ*. This has already been explained by the breeding habits of our *Culicinæ*. If clean water would remain as permanent marshes, and at the same time not contain any larviverous enemies, then it seems likely that we would be well represented by members of the sub-family *Anophelina;* but as it fortunately happens that our clean waters are either temporary, for short periods only, or permanent, it does not give *Anophelinæ* time to breed in the former; and again, even if the water does stagnate long enough, there are no *Anophelinæ* to inhabit it. With reference to the permanent waters, these are protected against mosquito-breeding by the presence of fish.

To appreciate the considerable absence of *Anophelinæ* about Brisbane it is necessary to consider primarily the breeding habits of our indigenous fishes.

These fishes are of the most economical importance, and the fact has been gradually gaining recognition that fish may be a very important factor in keeping a control on the propagation of mosquitoes in any given district.

Numerous statements have been made regarding the larvivorous propensities of *Girardinus pœciloides*, Filippi, a small fish, common in Barbadoes, West Indies, popularly known as "Millions." Its presence is said to be responsible for the absence of the malaria carrying *Anophelinæ* and the yellow-fever bearing *S. fasciata* in Barbadoes, consequently it has been suggested that *G. poeciloides* be introduced into our water collections, apparently assuming that there are no indigenous fish likely to prove of such value in mosquito destruction.

We have not only one kind of fish, but three or four, to take the place of *G. poeciloides,* and one particular species is even more voracious than the "Millions." None of these fish are by any means inferior to the "Millions," and all appear to be at least equally efficient and better suited to local environment.

In considering the use of a fish as a larva-destroyer, it should necessarily possess the following qualities:—It must be small, preferably not longer than 2 inches; capable of adapting itself to various environments—viz., stagnant and running water, water in artificial containers and otherwise; it should naturally frequent the shallow waters inhabited by mosquito larvæ; and, above all, it should make mosquito larvæ its natural food.

The fishes upon which observations have been made were confined in glass jars holding about half a gallon of water, and they were tried under natural conditions as well as laboratory conditions.

The following are known to exist about Brisbane:—

Genus.	Species.	Local Name.
Austrogobio ..	A. galii (Ogilby) ..	Firetail
Priopis ..	P. olivaceus (Ogilby)	Green Perchlet
Rhombatractus	R. fitzroyensis (Castelnau)	Spotted Sun Fish
Carassiops ..	C. compressus (Krefft)	Carp Gudgeon
Krefftius ..	K. adspersus (Castelnau)	Trout Gudgeon
Pseudomugil	P. signifer (Kner) ..	Blue Eye

With the object of making identification quite clear, the attached diagram of a fish is illustrated, showing the scientific terminology used in the following descriptions.

In form the fish is usually moderately elongated and compressed laterally, deepest at or in advance of the middle of the length and tapering posteriorly; sometimes it is deep and strongly compressed. The body is divided into three regions—head, trunk, and tail, the gill opening marking the limit between head and body, the vent that between the trunk and the tail.

The fins are formed by rays or spines, the difference between these being that spines are solid bony structures and are of uniform consistency throughout, whereas rays are usually branches and are composed of a number of small pointed segments. The fins may be divided into median fins, comprising the dorsal, on the back, the caudal at the posterior end of the fish, and the anal on the ventral edge of the tail between the vent and the caudal fin; and paired fins, pectorals, and pelvics corresponding respectively to the anterior and posterior limbs of other vertebrates.

The fish progresses in the water by lateral lashes of the tail assisted by the movements of the caudal fin, and generally the other fins chiefly function in maintaining the vertical position, assist in turning movements, or in slowing down. Some fish, however, swim by paddling with the pectoral fins.

The total length of the fish is measured from the extremity of the snout to the base of the caudal fin. In some cases the length is measured from the snout. The length of the head is the distance from the tip of the snout to the posterior margin of the gill cover or operculum, and the length of the snout from the anterior extremity to the front margin of the orbit.

In the distinction of species the greatest depth of the body is usually compared with the length of the fish. The diameter of the eye is usually compared with the length of the head. The least depth of the caudal peduncle—*i.e.,* the tail just in advance of the caudal fin—is compared with its length measured from the vertical through the end of the base of the anal fin to the actual base of the middle caudal rays.

The number of scales in the lateral line (*i.e.,* the muciferous channels on the head which are continued on the body appearing as a series of tube-bearing scales, usually running to the base of the caudal fin), or if these be enlarged the number in the longitudinal series a little above the lateral line, from above the gill opening, to the caudal fin is enumerated and the number in a transverse series is usually reckoned from the dorsal fin to the lateral fin. The shape, size, and position of the fins are important, and the number of rays especially so.

Males often have a larger and a broader head and larger fins than females, and there may be other sexual differences, especially at the breeding season. Immature fish usually differ from the adults in a relatively larger head, larger eye, shorter snout, and smaller mouth, and the shape and the relative size of the fins may change considerably during growth.

Austrogobio galii, Ogilby (Fire Tail).

(Proc. Linn. Soc. N.S.W., 1897, p. 788.)

" Depth of body $3\frac{3}{5}$ to 4, length of head $3\frac{2}{3}$ to $3\frac{4}{5}$ in. total length; depth of head $1\frac{1}{2}$ to $1\frac{2}{3}$, width of head $1\frac{3}{4}$ to $1\frac{7}{8}$ of the gently convex interorbital region 4 to $4\frac{3}{4}$, diameter of eye $3\frac{1}{5}$ to $3\frac{2}{5}$ in the length of the head, snout obtuse, $\frac{1}{5}$ to $\frac{3}{10}$ of a diameter shorter than the eye. Maxillary extending to or nearly to the vertical from the anterior border of the eye, its length $3\frac{2}{5}$ to $3\frac{4}{5}$ in that of the head. Seven gill rakers on the lower branch of the anterior arch. The space between the origin of the first dorsal and the extremity of the snout is from $\frac{1}{7}$ more to $\frac{1}{4}$ less than its distance from the base of the last soft ray; the 5th and 6th spines are the longest, $1\frac{7}{8}$ to $2\frac{2}{3}$ in the length of the head and reaching to or beyond the origin of the second dorsal, the posterior soft rays are the longest, $1\frac{1}{5}$ to $1\frac{1}{2}$ in the head; the anal fin commences below the origin of and is similar to the second dorsal; fourth ventral ray the longest $1\frac{3}{10}$ to $1\frac{3}{5}$ in the head and reaching to or not quite to the vent, pectoral with 15 rays reaching to the vertical from the end of the first dorsal, $1\frac{1}{4}$ to $1\frac{2}{5}$ in the head; caudal rather short, $4\frac{1}{5}$ to $4\frac{3}{4}$ in the total length, caudal peduncle rather slender, its least depth $2\frac{3}{5}$ to $3\frac{1}{5}$ in its length, which is equal to or rather more than the head. Genital papilla oblong, extending to the anal or not so far. All the scales imbricate those of the head, nape, and throat cycloid and smaller than the body scales, which are of equal size and ciliated. Vertebrae 30 or 31 (16 + 14-15)."

Pale olive green, more or less clouded above with purplish brown; fins hyoline, the dorsal and anal with a broad coppery marginal band; irides silvery.

This fish is to be found in any natural watercourse, fresh-water creeks, and lakes about Brisbane. It is a small species rarely growing to more than 2 inches. They are usually found in water which is not very deep, and lying on a sandy or gravelly bottom. Shoals of them may be seen collected in a small pothole, moving about slowly in search of food. A piece of bread, or a few mosquito larvæ dropped into the water, will be greedily devoured.

The " firetail" lives well in confinement, and as many as half a dozen will adapt themselves to inhabit a gallon and a half of water; they live as long as a fortnight when the water has not been aerated, and when attended to every two or three days, I have kept them alive for two years, and they are still alive.

Rhombatractus fitzroyensis, Castelnau (Spotted Sun Fish).

(Proc. Linn. Soc., N.S.W., 111, 1879.)

" Height of body is $2\frac{1}{2}$ the total length without caudal fin; there are 28 scales on the longitudinal line; first dorsal formed of one spine and six rays, second dorsal high, formed of a long strong spine and ten rays; the anal high, very long, with one spine and nineteen rays. Colour silvery brown, the fins spotted with pink. Length $2\frac{1}{2}$ inches. From the Fitzroy River (Rockhampton)."

This fish is an inhabitant of streams and rivulets about Brisbane. It is without doubt the best of our Queensland fishes as regards larva-destroyers; it lives well in confinement and feeds on egg-rafts, larvæ, and pupæ of all mosquitoes. It has been seen to devour a female mosquito when she had neared the water surface for oviposition.

Priopis olivaceus, Ogilby (Green Perchlet).

(Proc. Royal Soc. Queensland, vol. XXIII., 1911, p. 11.)

" D. VIII.[*] 17, A. III. 8; P. 12; Sc. 23-15; L. I. 0 to 4. Depth of body 2·55, of caudal peduncle 6·6, length of head 2·85, of caudal fin 2·85 in length of body. Length of snout 4·1, diameter of eye 3, width of interorbit 4·35, largest dorsal spine 1·65, longest anal 2·15, length of pectoral 1·25, of ventral 1·4 in length of head."

Upper profile of head linear; the nape convex with an appreciable median ridge; interorbital region convex; maxillary scarcely extending to below the anterior border of the eye. Preopercle with 5 or 6 strong spines at and below the angle. Head scales as large as those of the body.

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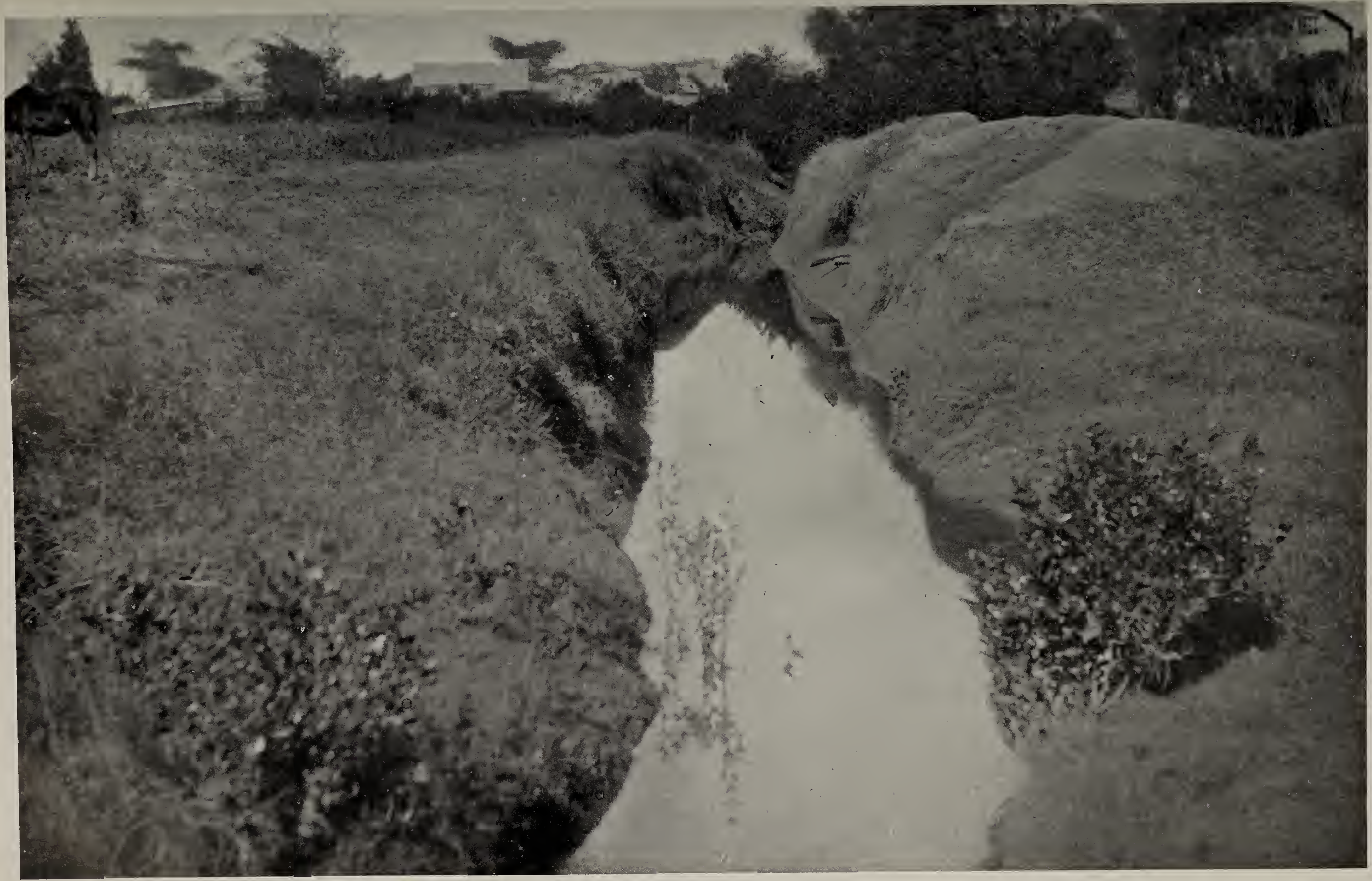
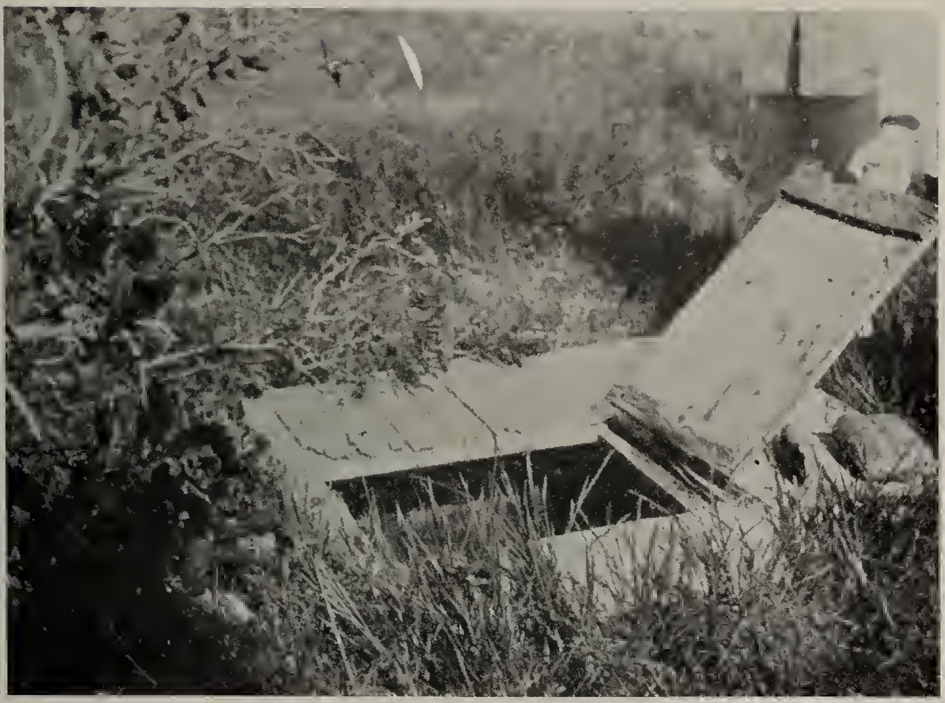
[*] The procumbent spine included.

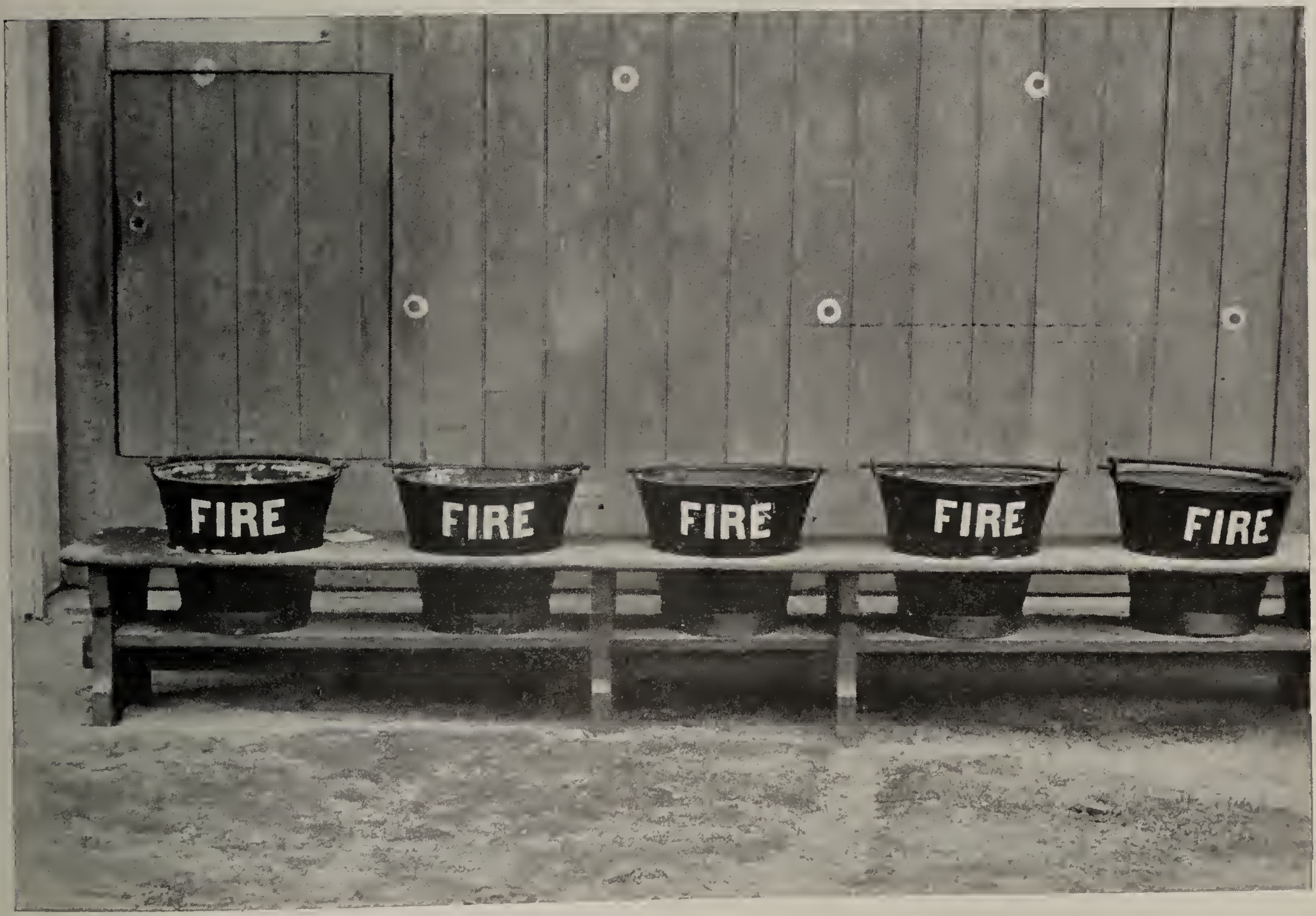
SALT-MARSH AT MAYNE.
Breeding ground of *Culicelsa Vigilax* and *Mucidus Alternans.*



A Small Tidal Creek. *Pseudomugil Signifer* (Blue-eye Fish).



A Surface Well, Thursday Island—Breeding *S. Fasciata*.



Favourite Breeding-places for *Stegomyia Fasciata*.

Procumbent dorsal spine well developed; spinous dorsal originating above the 4th body-scale, the 3rd spine longest and strongest, a little higher than the rayed dorsal; spine of soft dorsal 1·35 in the height of the spinous dorsal. Anal fin originating below the 12th body scale; 3rd spine longest, as long as that of the soft dorsal, a little longer than the base of the fin and 1·35 in the 1st ray, which is as high as that of the dorsal. Caudal fin deeply forked, the middle rays about half as long as the lobes. Third and fourth pectoral rays longest, extending to the 10th body scales. Ventral shorter than the pectoral, the two outer rays longest, reaching to the vent, the spine as long as the 3rd anal spine.

"Green above, yellowish white below; a black line which is feebly curved anteriorly from the upper angle of the opercle to the root of the caudal; the scales forming the series through which this line runs are profusely dotted with black, as also are the edges of all the scales above the line, and anteriorly the surface of the scales is similarly but more sparsely dotted, two or three series of body scales below the line and the scales of the tail with a single marginal series of black dots. Upper surface of head and nape and the opercles so profusely dotted as almost to obscure the ground colour; cheeks and lower surface of head less closely dotted. All the fins similarly marked, the dots being most crowded on the membrane of the second dorsal spine, the tips of the anterior anal rays, and the middle ventral rays."

This is another pretty little fish found in lakes, ponds, and creeks in the neighbourhood of Brisbane. They have been found in isolated puddles—caused by soakage—not containing more than 300 gallons of water. As a rule, it does not grow to more than 1½ inches. This fish is also an active destroyer of mosquito larvæ.

Carassiops compressus, Krefft. (Carp Gudgeon). See remarks under *Krefftius adspersus.*

Krefftius adspersus, Castelnau. (Purple Spotted Trout Gudgeon).

Distribution: Eastern Australia.

This species may be looked upon as ranging from the Fitzroy River in the North to the Upper Shoalhaven district in the South.

Though the "Carp" and the "Trout" Gudgeons will eat larvæ when deprived of their food for two or three days, nevertheless they do not seem to exercise any check upon mosquito-breeding under natural conditions. They are bottom feeders practically, lying concealed in the mud all day and only eating mosquito larvæ when no other food is available.

These fishes devour the fins of other small fishes, and consequently they are not of much practical use as larva-destroyers.

Pseudomugil signifer (Blue-eye).

This species never grows to more than 1½ to 2 inches long. It is destined in the future to play an important part in the reduction of mosquitoes on salt marshes, to which it appears to be admirably adapted.

The "Blue-eye" is sprightly, vivacious, and an active swimmer, being in addition very tenacious of life. It occurs on the coast of Queensland from the rivers of South Queensland to the New South Wales coastline. It adapts itself both to fresh and salt water, and it thrives well in confinement when once acclimatised. I have kept these fish in about 2 gallons of fresh water as long as six months.

The presence of *P. signifer* in any salt swamp is, however, not always indicative of the absence of mosquito larvæ. Numerous puddles, though isolated from the main swamp, are invariably present in these marshes. Besides these, there is usually an abundant supply of vegetation, which protects the mosquito larvæ from attack.

It thus becomes of prime importance to keep salt swamps deepened and cleared of rank vegetation so as to make them inhabitable for fish.

L. E. COOLING,

Assistant Inspector in Charge of Mosquito Operations.

BIOLOGY OF CULICADA VITTIGER, SKUSE.

Culex vittiger, Skuse (1889).

[Hitherto, the ♂ and life history of *Culicada vittiger* have not been observed.]

Larva.—The full-grown larva of *C. vittiger* measures 10 m.m. in length, exclusive of caudal bristles. The colour is dark grey on the thorax and abdomen; head siphon and anal segment dark brown.

Head moderately large and light in colour. Antennæ short and simple, the plume being represented by two short subplumose hairs arising from a submedian tubercle. (Fig. 1.) Brushes slightly hooked at end and combed with very fine teeth at apex. Maxillæ small, numerous very stout spines and teeth. Maxillary plume consisting of numerous stout spined hairs, spines protruding from the hairs like, and somewhat the shape of, rose-thorns. The labial plate possesses about thirteen teeth on each side and a slightly larger median one; the base is symmetrically crenulated as shown in Fig. 2. Labium well clothed with long stout hairs; eyes small, round, and black. Thorax rather hairy, some of the hairs arising from four distinct chitnous hooks (Fig. 3) situated two on either side. The hairs are all subplumose.

The abdomen bears hairs similar to the thoracic ones. First abdominal segment with lateral tufts of five or six hairs and the second segment of about four hairs. Remaining segments bearing lateral plumes of two hairs. The comb consists of 10-12 rather simple spines.

The siphon has a very rough surface, its width being about 2⅛ in length of siphon.

The pecten spines (Fig. 4) are variable in form according to the angle of vision and also in number; 23 and 20 in one specimen and 18 and 15 in another. They increase in size upwards and run for one-third the length of the siphon, which are then terminated by three or four much larger spines situated comparatively widely apart —a distance of about the length of the spine itself. The top spine of the basal set is the longest of that set and sometimes may be situated close up to the set, or at a distance of its own length from it; its position varies so much that it is this spine that makes the fourth large one. Midway between the penultimate and ante-penultimate spines (large ones) a tuft of two or sometimes three simple hairs arise.

The anal segment is not as long as width of siphon; papillæ equal about three-quarters the length of siphon, and gradually tapering to a very sharp point. Beard on dorsal part of anal segment consisting of about 12 short hairs, half the length of siphon, and also two long ones which are twice the length of the short ones. Ventral beard consisting of about 12 sets of strong simple bristles and occupying the posterior half of the segment.

Observations.—I was able to capture these larvæ at Mayne, breeding in a few small temporary collections of rain water collecting in grassy undulations.

Microscopically they resemble larvæ of *Culicelsa alboannulata,* Macquart, for which I took it to be until examined through a lens.

About one dozen mature larvæ were collected on 19th May, 1913, when weather was very bleak, the thermometer registering 58 deg. Fahr.

May 21st	Larvæ began pupating
May 23rd	Imagines began emerging
May 23rd	All larvæ had transformed to pupæ
May 25th	The last adults emerged

The total number of adults was 12—6 ♂'s and 6 ♀'s—and of this number five were saved for breeding, including 3 ♀'s and 2 ♂'s. The remainder, some of which had been slightly damaged, were killed and pinned. The insects were fed on honey and dates, the former being relished greatly by both sexes.

May 25th	2 ♀ sucked blood
May 26th	2 ♂ died
May 26th	1 ♀ sucked blood
June 5th	Oviposition commenced

The number of eggs deposited by 1 ♀ at a time was 28. A second lot of larvæ was collected at the second moult. About 150 were caught and transferred to a glass jar containing horse dung which was collected on the grassy bottom of the pool.

28th May.	Larvæ collected.
1st June.	About 50 larvæ remaining; others had been preyed upon by their own species.
8th June.	Larvæ started pupating.
11th June.	Imagines started to emerge.
11th June.	All larvæ had pupated.
13th June.	All imagines had emerged.
14th June.	♀'s started biting.

Owing to its cannibalistic habits, this species cannot multiply like other species; it devours the body of other larvæ, only leaving a mass of floating breathing siphons on the water. The larva of *C. vittiger* usually remains in almost a horizontal position under the water surface, but sometimes hangs like *C. fatigans.*

Early in February last year, I found *C. vittiger* biting in scrub country. After laying a batch of eggs in a netted bottle of water, it died and the eggs were left aside to hatch. Having placed the netted bottle of water on a shelf, I incidentally examined the water about six months afterwards and found two mature larvæ. I captured one and took a microscopical drawing, while the other was left to hatch, but it unfortunately died. It seems probable, ∴ that the incubation period extends to about six months.

Culex vittiger (Skuse) ♂.

Head brown, clothed with rather long loose ochraceous curved scales in front and behind, and with numerous median upright forked ochraceous ones, and over the occiput. A tuft of orange bristles projects forward over the vertex. Antennæ deep umber brown, with pale bands and deep brown verticillate hairs; basal joints large and dark brown; palpi four jointed, longer than proboscis by apical segment, and ¼ penultimate segment; apical joint bluntly pointed, longer than penultimate, and the latter longer than the ante-penultimate. Clothed on either side of the last two segments with moderately long golden brown hairs, which also exist on one side of the ante-penultimate segment; basal half of basal segment dark brown clothed with ochraceous and dark scales, upper half ochraceous, clothed with numerous ochraceous scales and a few brown ones; basal segment clothed with numerous dark bristles; last three segments dark brown with violet reflections; basal half of ante-penultimate segment clothed with ochraceous scales. Clypeus dark brown. Proboscis ochraceous at basal half, and remainder dark brown, clothed with ochraceous and dark scales; apical half abruptly much broader.

Thorax deep brown with broad lines of narrow curved golden scales and four broad lines of similar bronzy-black scales, with brown bristles, and a bare space in advance of scutellum. Scutellum deep brown with golden narrow-curved scales, rather dense on the mid lobe, with numerous rich golden border bristles; metanotum deep brown, pluræ densely clothed with flat greyish-white scales.

Abdomen brown, clothed mostly with ochraceous scales and also dark scales on posterior border of each segment; clothed laterally with numerous golden bristles; venter with pale ochraceous scales, with black scaled apical borders. Legs brown, with violet reflections in some lights. Trochanters ochraceous; femoræ ochraceous above and below except at tips, where they are dark, clothed with dark scales on apical portion and ochraceous ones at base; tibiæ clothed with dark scales and numerous bristles; metatarsi light at base and dark at tip; first and second tarsals rather indistinctly banded with yellow.

Fore ungues large, sharp, equal and uniserrated; mid ones unequal, the smaller uniserrated, and the larger with a tubercle near base; hind ungues equal and simple (Fig. 5.)

Wings scaled as in ♀, and very much shorter than abdomen. Fork cells short, first sub-marginal longer and about half the width of second posterior cell; its base nearer the apex of the wing; petiole a little longer than the cell. Petiole of second posterior cell about one and a-quarter times as long as cell. Posterior cross vein situated its own distance from mid. Mid cross vein the longest of the three.

Halteres ochraceous brown, slightly dusky at knob.

The male genitalia with prominent claspers, terminated by a short spine (Fig. 6). Harpes broad, forked, one branch longer than the other, which is the apex of the harpe, and ending in a small recurved hook; the smaller branch possesses sharp spine. Harpagones recurved at tip.

The squamose appearance in ♂ is much lighter than in ♀.

This is a very distinct species, and must be removed from genus *Culex.* Mr. Taylor, of the Aust. Trop. Res. Institute, informs me that he placed *vittiger* in genus *Culicada* some time ago, his observations being based on the female characters.

CULEX VITTIGER, *Skuse.*

Larva ad ♂

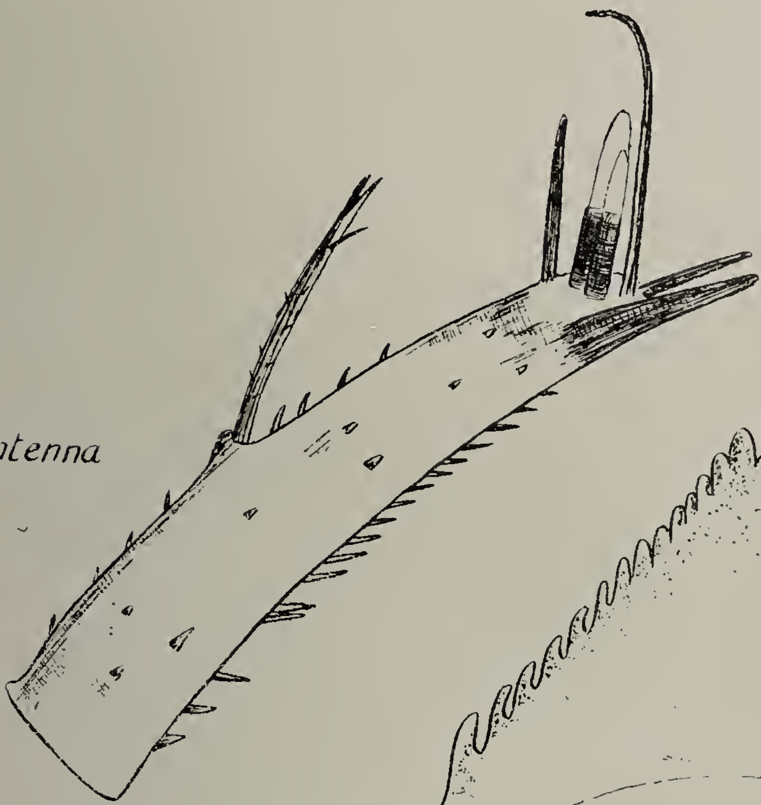


Fig. 1. *Antenna*

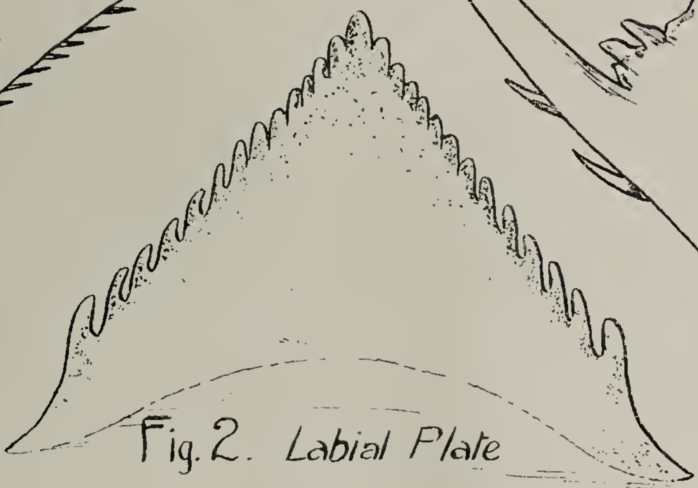


Fig. 2. *Labial Plate*

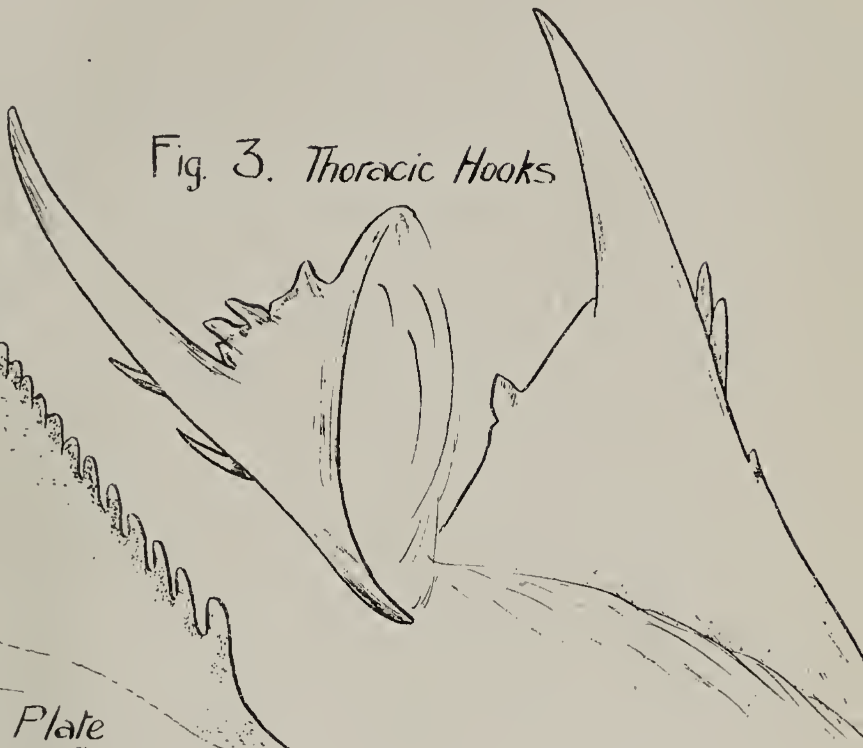


Fig. 3. *Thoracic Hooks*

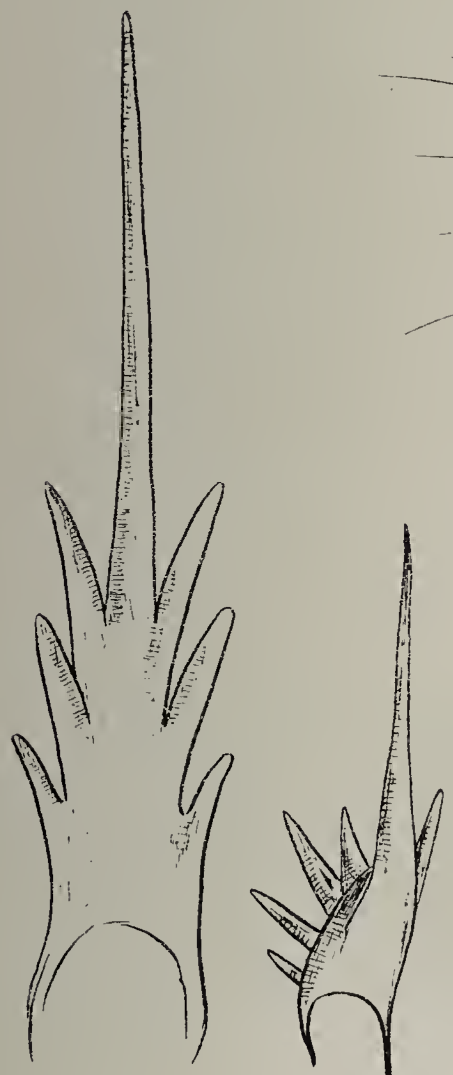


Fig 4. *Pecten Spines*

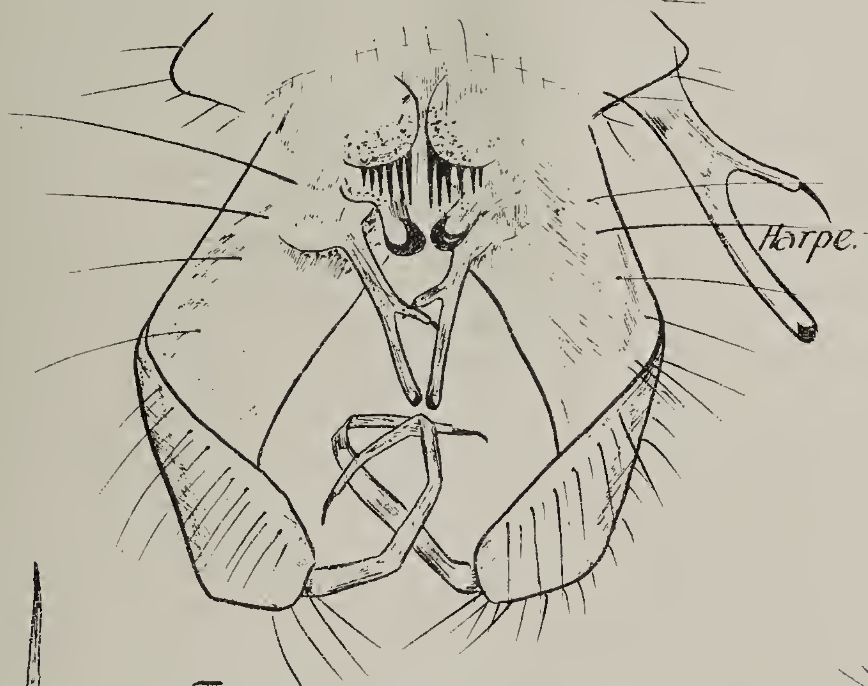


Fig 6. *Male Genitalia.*
of C. vittiger Skuse

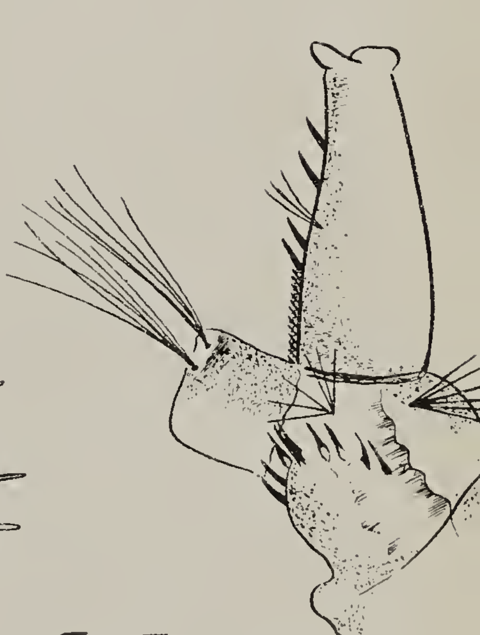


Fig. 7. *Siphon of*
C. vittiger Skuse

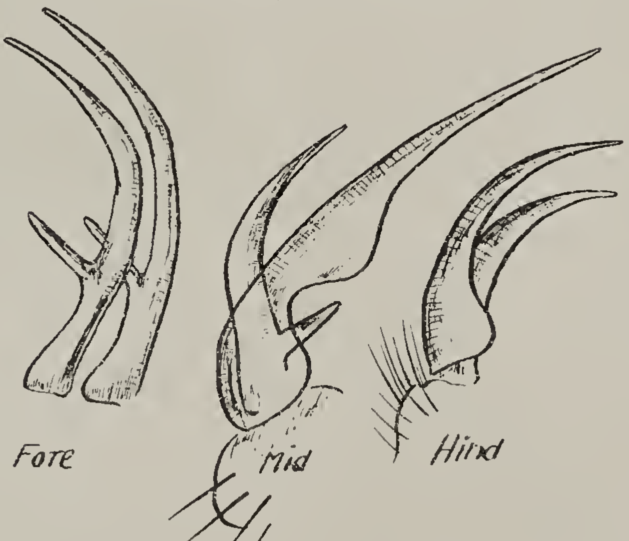


Fig. 5. *Ungues.*

APPENDIX K.

NOXIOUS VERMIN (MOSQUITOES) ORDER OF GOVERNOR IN COUNCIL, METROPOLITAN AREA OF BRISBANE.

ORDER IN COUNCIL.

At the Executive Buildings, Brisbane, the twelfth day of September, 1912.

Present:

His Excellency the Governor in Council.

WHEREAS it is provided by "*The Health Acts, 1900 to 1911*," that the Governor in Council, whenever he is satisfied that a visitation of any epidemic, endemic, or infectious disease may be prevented, or that the spread or continuance of any such disease may be checked, diminished, or prevented by taking measures for the destruction of insect life, may, by Order in Council, published in the *Gazette* and in such newspapers as the Commissioner directs, declare insect life to be noxious; and direct that owners and occupiers of all or any premises shall adopt such measures as are prescribed in the Order for the purpose of destroying such insect life and preventing its breeding and preventing its access to such premises, and destroying, removing, and preventing the accumulation of any articles, matters, or things which provide or are likely to provide harbourage or food for the same upon such premises: And whereas the Governor in Council is satisfied that a visitation of infectious disease may be prevented by taking measures for the destruction of mosquitoes: Now, therefore, His Excellency the Governor, by and with the advice of the Executive Council, and in pursuance of the provisions of the said Acts, doth hereby declare mosquitoes to be noxious, and doth direct that the following measures shall be adopted by the owners and occupiers of all premises within the metropolitan area—that is to say, in the Cities of Brisbane and South Brisbane, the Towns of Hamilton, Ithaca, Toowong, and Windsor, the Shire of Stephens, and so much of the Shire of Balmoral as lies to the west of Bulimba Creek:—

1. Every tank or cistern or other similar receptacle, whether above or below ground, used or intended to be used for holding or storing water or liquid of any description in which mosquitoes are liable to breed, shall be kept constantly and effectively protected against the ingress or egress of mosquitoes by means of brass, copper, or bronze wire mesh, not coarser than eighteen meshes to the inch each way, at every opening into such tank, cistern, or other receptacle.

2. Every pond, pool, puddle, trough, drain, inlet, sewer, inlet flush tank, garden-barrel, fountain, or other place or receptacle of similar character or kind which habitually or occasionally contains water or liquid of any description in which mosquitoes are liable to breed, shall be continuously and effectively prevented from acting as a breeding place for mosquitoes by one or more of the following methods, namely:—

(*a*) By keeping the water or other liquid contained in such receptacle constantly covered or treated with kerosene or other oil or substance approved for that purpose from time to time by the Commissioner of Public Health;

(*b*) By keeping the water constantly stocked with mosquito-larva-destroying fish;

(*c*) By covering all openings into such receptacle with protective wire netting as specified under clause 1 hereof; or with other material impervious to mosquitoes; or

(*d*) By completely drawing off or emptying all water from such receptacles and allowing the interior to dry, or thoroughly scrubbing all parts of such interior after emptying and before it is again filled, not less frequently than once in each seven days.

3. Whenever on any land there is any swamp, pool, pond, puddle, or other collection, whether permanent or not, of water or liquid of any description in which mosquitoes are liable to breed, and which in the opinion of the Commissioner, as expressed by notice, in writing, to the owner or occupier of such land, cannot be effectively and continuously prevented from acting as a breeding place for mosquitoes otherwise than by draining or filling in, the owner or occupier of such land shall drain or fill in every such swamp, pool, puddle, or other collection of water or other liquid to the satisfaction of the Commissioner.

4. All water kept on any premises in any can, bowl, bottle, tub, bucket, pot, barrel, jug, vase, flower pot, safe dish, or other similar receptacle shall once at least in every seven days be completely emptied, and the receptacle shall be thoroughly dried and cleansed before being again filled.

5. No person shall allow to remain on any premises any tins, bottles, cans, or other rubbish which may by holding or collecting water or other liquid serve as a breeding place for mosquitoes.

All such tins, bottles, cans, or other similar rubbish shall be destroyed or otherwise so dealt with as to prevent them effectively from serving as breeding places for mosquitoes.

6. Every gutter, drain, roof, spouting, or roof-gutter, or other similar place or channel which by reason of defective construction or repair enables water to stand in or on it and does not drain off thoroughly, shall be so reconstructed, altered, or repaired as to effectively prevent water from remaining or standing in such manner that mosquitoes are liable to breed therein.

7. In addition to the foregoing every owner and occupier shall use all reasonable means, by draining off, filling in, screening, oiling, or otherwise protecting any collections of water or other liquid liable to act as breeding places, to prevent mosquitoes from breeding on premises owned or occupied by him.

And the Honourable the Home Secretary is to give the necessary directions herein accordingly.

E. H. ABELL, Clerk of the Council.

APPENDIX L.

NUMBER OF RATS AND MICE CAUGHT OR COLLECTED AND EXAMINED AT OUT PORTS, 1st JULY, 1912, TO 30th JUNE, 1913.

1912-13.	Destroyed.			Examined.		
	Rats.	Mice.	Total.	Rats.	Mice.	Total.
			Maryborough.			
July	359	114	473	357	109	466
August	453	31	484	376	34	410
September	287	43	330	278	42	320
October	420	44	464	405	19	424
November	526	34	560	489	13	562
December	183	34	217	163	32	195
January	294	55	349	232	45	277
February	263	82	345	216	54	270
March	404	48	452	427	42	469
April	453	123	576	446	123	569
May	356	161	517	314	161	475
June	370	105	475	331	97	428
Totals	4,368	874	5,242	4,034	771	4,805
			Bundaberg.			
July	384	51	435	57	1	58
August	334	59	393	64	18	82
September	337	47	384	71	2	73
October	256	38	294	35	4	39
November	391	45	436	53	3	56
December	124	28	152	38	2	40
January	351	33	384	60	1	61
February	328	26	354	29	..	29
March	395	49	444	37	5	42
April	343	92	435	184	50	234
May	365	35	400	53	..	53
June	233	45	278	22	7	29
Totals	3,841	548	4,389	703	93	796
			Rockhampton.			
July	472	10	482	472	10	482
August	426	25	451	426	25	451
September	381	..	381	381	..	381
October	412	16	428	412	16	428
November	494	31	525	494	31	525
December	209	5	214	209	5	214
January	341	68	409	341	68	409
February	317	..	317	317	..	317
March	330	26	356	37	5	42
April	453	34	487	388	29	417
May	313	..	313	313	..	313
June	283	..	283	283	..	283
Totals	4,431	215	4,646	4,073	189	4,262
			Mackay.			
July	297	61	358	156	Smears submitted for Examination	
August	274	87	361	78	,,	
September	220	20	240	75	,,	
October	183	11	194	78	,,	
November	322	11	333	153	,,	
December	144	34	178	78	,,	
January	297	18	315	78	,,	
February	295	33	328	75	,,	
March	319	30	349	153	,,	
April	331	35	366	159	,,	
May	307	21	328	62	,,	
June	241	26	267	..		
Totals	3,230	387	3,617	1,144	Smears submitted for Examination	

APPENDIX L.—*continued.*

NUMBER OF RATS AND MICE CAUGHT OR COLLECTED AND EXAMINED AT OUT PORTS, 1ST JULY, 1912, TO 30TH JUNE, 1913—*continued.*

1912-13.	Destroyed.			Examined.		
	Rats.	Mice.	Total.	Rats.	Mice.	Total.
		Townsville.				
July	478	22	500	417	..	417
August	559	19	578	495	..	495
September	430	25	455	400	..	400
October	375	26	401	316	..	316
November	508	23	531	357	9	366
December	392	4	396	276	..	276
January	481	22	503	206	5	211
February	476	13	489	452	..	452
March	490	13	503	328	..	328
April	444	16	460	384	..	384
May	451	25	476	49	24	73
June	432	10	442	358	..	358
TOTALS	5,516	218	5,734	4,038	38	4,076

APPENDIX M.

NOTIFICATIONS OF INFECTIOUS DISEASES RECEIVED FROM 1ST JULY, 1912, TO 30TH JUNE, 1913. OTHER THAN FROM METROPOLITAN AREA.

Notifiable Disease.	Notifications Received.
Diphtheria	1,788
Erysipelas	82
Puerperal Fever	34
Phthisis	203
Scarlet Fever	72
Typhoid Fever	977
Cerebro-Spinal Meningitis	4
Ankylostomiasis	17
Relapsing Fever	3
Infantile Paralysis	22
TOTAL	3,202

APPENDIX N.

DISTRIBUTION OF CASES OF INFECTIOUS DISEASES NOTIFIED FROM THE BRISBANE METROPOLITAN AREA, 1ST JULY, 1912, TO 30TH JUNE, 1913.

Local Authorities.	Typhoid Fever.	Scarlet Fever.	Puerperal Fever.	Diphtheria	Erysipelas.	Phthisis.	Ankylostomiasis.	Infantile Paralysis.	Cerebro-Spinal Mening.	Membr. Croup.	Total.
Brisbane ..	110	13	2	167	18	105	1	4	..	..	420
South Brisbane	97	15	4	97	12	75	..	..	..	..	300
Balmoral ..	15	..	1	17	1	4	1	..	..	..	39
Belmont ..	1	..	..	2	2	..	..	..	..	..	5
Coorparoo ..	4	1	..	8	1	1	..	..	..	..	15
Enoggera ..	1	1	..	1	1	1	..	1	..	..	15
Hamilton ..	5	..	2	29	1	8	..	1	..	..	46
Ithaca ..	39	7	..	94	5	20	..	3	1	1	170
Indooroopilly ..	..	..	..	3	..	1	..	..	..	..	4
Kedron ..	7	..	2	18	2	2	..	..	..	..	31
Sherwood ..	4	5	1	14	..	3	..	1	..	..	28
Sandgate ..	10	..	1	10	1	8	..	..	..	..	30
Stephens ..	8	2	..	21	2	6	..	2	..	..	41
Taringa ..	2	3	1	26	1	1	..	..	..	..	34
Toombul ..	8	4	1	46	4	8	..	..	..	..	71
Toowong ..	16	7	1	21	2	13	..	1	..	..	61
Windsor ..	28	3	1	46	8	12	..	2	..	1	101
Wynnum ..	..	..	..	18	1	2	..	1	..	..	22
Yeerongpilly ..	4	..	..	2	..	..	..	..	..	..	6
TOTALS ..	359	61	17	640	62	270	2	16	1	2	1,430

APPENDIX O.

ENTHETIC (VENEREAL) DISEASES REGULATIONS, 1913.

ORDER IN COUNCIL.

At the Executive Buildings, Brisbane, the twenty-seventh day of March, 1913.

Present:

His Excellency the Governor in Council.

WHEREAS by "*The Health Acts*, 1900 *to* 1911," it is amongst other things enacted that the Governor in Council, on the recommendation of the Commissioner, may from time to time, by Order in Council, declare that in such area or areas as are therein named, any venereal disease named in such order shall be a disease to which the provisions of section 132A of the aforesaid Acts shall apply: Now, therefore, His Excellency the Governor, by and with the advice of the Executive Council, and on the recommendation of the Commissioner, doth hereby declare that, on and after the First day of April, 1913, the venereal diseases—Primary Syphilis, Secondary Syphilis, and Gonorrhœa—shall be diseases to which the provisions of section 132A of the aforesaid Acts shall apply within the areas of the Cities of Brisbane and South Brisbane, the Towns of Hamilton, Ithaca, Toowong, and Windsor, the Shire of Stephens, the Shire of Toombul, and so much of the Shire of Balmoral as lies to the west of Bulimba Creek.

And the Honourable the Home Secretary is to give the necessary directions herein accordingly.

E. H. ABELL, Clerk of the Council.

Home Secretary's Department,
Brisbane, 27th March, 1913.

HIS Excellency the Governor, with the advice of the Executive Council, has, in pursuance of the provisions of "*The Health Acts*, 1900 *to* 1911," and upon the recommendation of the Commissioner of Public Health, been pleased to make the following Regulations, entitled "The Enthetic (Venereal) Diseases Regulations, 1913."

J. GEO. APPEL.

"THE HEALTH ACTS, 1900 TO 1911."

THE ENTHETIC (VENEREAL) DISEASES REGULATIONS, 1913.

WHEREAS, in pursuance of "*The Health Acts*, 1900 *to* 1911," the Governor in Council, on the recommendation of the Commissioner, has, by Order in Council, declared that in the following areas, that is to say, the Cities of Brisbane and South Brisbane, the Towns of Hamilton, Ithaca, Toowong, Windsor, the Shire of Stephens, the Shire of Toombul, and so much of the Shire of Balmoral as lies to the west of Bulimba Creek, the venereal diseases —Primary Syphilis, Secondary Syphilis, and Gonorrhœa— shall be diseases to which the provisions of the aforesaid Acts shall apply: Now, therefore, His Excellency the Governor, with the advice of the Executive Council, on the recommendation of the Commissioner, in pursuance of the provisions of section 132B of "*The Health Acts*, 1900 *to* 1911," has been pleased to make the following Regulations:—

1. The form of notification to be used by medical practitioners for notifying cases of venereal diseases in areas in which section 132A of "*The Health Acts*, 1900 *to* 1911," is in force shall be as hereunder set forth:—

QUEENSLAND.

"THE HEALTH ACTS, 1900 TO 1911."
(Sections 132A and 132B.)

Confidential.

No.:

Notification of venereal disease.

The Commissioner of Public Health,
Brisbane.

I hereby give you notice that* a person attended or treated by me is suffering from a venereal disease, namely [*name of disease*].

The following particulars are supplied in respect of such person:—

† Sex.	† Age.	† Occupation.	† Marital Condition.	† Duration or Stage of Disease.	* Number or Reference in my Records.

Source of infection stated or ascribed (if any):
Remarks:

Medical Practitioner.

Date

* "*The Health Acts*, 1900 *to* 1911," section 132B, require that the name and address of the patient shall not be disclosed, but he shall be denoted by a number or other reference in or to the records of the medical practitioner.

† An answer is required for each heading.

2. If the Commissioner or any medical practitioner suspects that any person is infected with venereal disease, the Commissioner may, in writing, require such person to submit himself or herself for examination by clinical and bacteriological methods. Such requisition shall state the name of the medical practitioner to whom such person is required to submit himself or herself for examination, and the time and place of examination.

3. The Commissioner may make such arrangements as he thinks fit for the establishment, management, and control of a dispensary for the gratuitous treatment of venereal diseases at the General Hospital, Brisbane.

4. When any matter or thing is by these Regulations directed to be done, or where any authority is given by these Regulations to the Commissioner or any person to direct or require any matter or thing to be done, and such act directed to be done remains undone, in every such case every person offending against such direction shall be deemed guilty of an offence against these Regulations.

Every person guilty of an offence against these Regulations shall, for every such offence, be liable to a penalty not exceeding twenty pounds.

On and after the First day of April, 1913, the foregoing Regulations numbered one to four inclusive shall be in force within the areas of the Cities of Brisbane and South Brisbane, the Towns of Hamilton, Ithaca, Toowong, and Windsor, the Shire of Stephens, the Shire of Toombul, and so much of the Shire of Balmoral as lies to the west of Bulimba Creek.

[*Circular to Medical Practitioners, Brisbane Metropolitan Area.*]

QUEENSLAND.

State Department of Public Health,
Brisbane, 28th March, 1913.

Dr.

ENTHETIC (VENEREAL) DISEASES.

(Notification and other measures, Metropolitan Area of Brisbane.)

SIR,—It has been decided by the Honourable the Home Secretary that the venereal diseases hereunder named shall be rendered notifiable to the Commissioner of Public Health within the Metropolitan Area:—

1. Primary Syphilis.
2. Secondary Syphilis.
3. Gonorrhœa.

For the purpose of notification this area includes the Cities of Brisbane and South Brisbane, the Towns of Hamilton, Ithaca, Toowong, Windsor, the Shire of Stephens, the Shire of Toombul, and so much of the Shire of Balmoral as lies to the west of Bulimba Creek.

A fee of 2s. 6d. will be paid for each complete notification.

Regulations have been made prescribing the special form of notification to be used for the above purpose, together with other matters. A copy is attached for your information, and a book of notification forms will be forwarded shortly.

It will be noted that the name and address of the notified patient are not to be disclosed, but that he shall be denoted by a number or other reference in or to the records of the medical practitioner. Notification is to be made to the Commissioner of Public Health only.

The purpose of notification is to gain definite information concerning the prevalence in the community of specific venereal diseases in an actively infectious condition. Failing this knowledge, precise action cannot be taken against this class of disease.

Upon the publication of an Order rendering venereal diseases notifiable persons, other than a medical practitioner or a person acting under the direct instructions of a medical practitioner, are forbidden (with certain specified and carefully limited exceptions), under heavy penalty, to attend upon or treat, within the area to which ths Order applies, any person suffering from such disease. In order to leave no reasonable basis for illegal exploitation of such sufferers, it is intended to institute a Dispensary for Enthetic Diseases, under the control of the Department of Public Health, in connection with the Brisbane General Hospital, where free out-patient treatment can be obtained without unnecessary questions or inquiry. Arrangements will also be made for free in-patient treatment of a limited number of suitable cases.

A circular of information to sufferers from venereal disease has been drawn up, and a copy is enclosed for your information. A further supply will be sent to you shortly, and real assistance will be given to the undertaking if you will be so good as to give a copy to any venereal sufferer who comes under your professional attention.

It will be noted from perusal of the Regulations and the sections of the Health Acts which relate to venereal disease that very definite action may be initiated by the Commisisoner of Public Health, or by medical practitioners, for dealing with infective persons.

Other measures are in process of organisation, including steps for the suppression of solicitation, of juvenile prostitution, and of the "bludger" class of human parasite. These, taken together, represent perhaps the most extensive attempt yet made in a British community to deal deliberately with venereal disease as a health problem. Success or failure will depend largely upon the co-operation afforded to the undertaking by the medical profession in Brisbane in respect of full and accurate notification. It is confidently anticipated, however, that the profession will lend its active support to a measure which has for its object the reduction and control of this class of disease.

Yours obediently,

Commissioner of Public Health.

[*Circular to Pharmacists, Brisbane Metropolitan Area.*]

QUEENSLAND.

State Department of Public Health,
Brisbane, 28th March, 1913.

ENTHETIC (VENEREAL) DISEASES.

SIR,—I have the honour to inform you that the provisions of section 132A of "*The Health Acts*, 1900 *to* 1911," have been applied by Order in Council to the following Areas:—The Cities of Brisbane and South Brisbane, the Towns of Hamilton, Ithaca, Toowong, Windsor, the Shire of Stephens, the Shire of Toombul, and so much of the Shire of Balmoral as lies to the west of Bulimba Creek, in respect of the venereal diseases hereunder named:—

1. Primary Syphilis.
2. Secondary Syphilis.
3. Gonorrhœa.

Your attention is drawn to the following extract from the section in question which will apply in the areas abovementioned:—

> (3) No person other than a medical practitioner or a person acting under tho direct instructions of a medical practitioner shall attend upon or treat any person suffering from such disease. Every person who contravenes tnis subsection shall be liable to a penalty not exceeding fifty pounds, or to imprisonment for any period not exceeding six months.
>
> This subsection shall not apply to a registered pharmaceutical chemist who dispenses to the patient of a medical practitioner the prescription of such medical practitioner, or to any pharmaceutical chemist who, under a permit in writing from the Commissioner (which permit the Commissioner is hereby empowered to grant), prescribes any medicine or drug for any person suffering from such disease, or to any person who, under a permit in writing from the Commissioner (which permit the Commissioner is hereby empowered to grant) sells any proprietary medicine or drug to any person suffering from such disease; provided always that such proprietary medicine or drug is approved of by the Commissioner.

In order to afford relief to sufferers who for any reason of their own desire to avoid ordinary conditions of medical treatment, a Free Dispensary for Enthetic Diseases will shortly be opened in connection with the Brisbane General Hospital. Medical advice will there be available without charge for sufferers of either sex. No details are obligatory concerning the name, address, or other identificatory particulars of any person applying for treatment at the dispensary, and no charge will be made.

A circular of information relating to venereal diseases has been drawn up for distribution to suitable cases. A copy is enclosed, and a further supply is available on application to the Department of Public Health, or to the Pharmaceutical Society of Queensland. You will afford valuable assistance to the undertaking by distributing a copy of this circular to any sufferer from venereal disease with whom you may be brought in professional contact, and by advising him to seek medical treatment without delay.

The present undertaking includes also a number of other measures designed to reduce the prevalence of venereal disease. These represent, perhaps, the most deliberately organised attempt yet made in a British community to control this class of disease on modern lines. The pharmaceutical profession can give valuable aid, and it is confidently anticipated that such aid will be forthcoming.

Yours obediently,

Commissioner of Public Health.

[*Pamphlet for public information.*]

DEPARTMENT OF PUBLIC HEALTH, QUEENSLAND, 1913.

VENEREAL DISEASES.

Venereal disease is neither a crime nor a punishment. Those who are so unfortunate as to contract it must carefully avoid all risk of infecting others. They should endeavour, by obtaining and following proper medical advice, to regain their health.

A person infected with any venereal disease should never trust his health to patent medicines or any advertised treatment. He should seek proper medical advice at once, and follow it.

If not properly treated, venereal disease is very likely to lead to dangerous and painful illness, and perhaps to the death of the sufferer. Those who *knowingly* infect others with any venereal disease are liable to punishment.

Free treatment.

Free treatment for either sex can be obtained without any need to give name, address, or other details, and under conditions of complete secrecy, on personal application to *the Government Dispensary for Enthetic Diseases, at the Out-patient Department of the General Hospital, Brisbane.*

A medical officer will be in attendance at the following times:—

Monday, 5 to 6 p.m.;
Wednesday, 5 to 6 p.m.;
Thursday, 5 to 6 p.m.;
Friday, 7 to 8 p.m.

I.—SYPHILIS.

1. Syphilis is a disease which is curable in the early stages; if hospital treatment is undergone, it may be cured in a shorter time than is otherwise possible. As a rule it requires a long course of treatment, lasting perhaps for several years, even when there is no external sign of the disease.

2. It is extremely contagious, especially by the sores and erosions (however small they may be) which generally occur on the genital organs and in the mouth. These contagious sores and erosions may occur, however, on any part of the body.

3. A patient with syphilis must, therefore, abstain from any sexual intercourse when he has the slightest soreness or other lesions on the genital organs unless he has been certified by a doctor to be free from infection. He must abstain from kissing when he has sores or soft patches on the lips or tongue, for a kiss, even on the healthy skin, may be contagious.

4. Contagion may also be transmitted through the medium of any object which has been in contact with the contagious secretions of the disease; for example, pipes, cigars, cigarettes, towels, clothing, spoons, glasses, &c. Great care must be taken to avoid infecting others in this way.

5. Syphilis is hereditarily transmitted to children (who generally die), when it has not been sufficiently treated. A syphilitic sufferer should not marry without consulting a doctor and obtaining his permission after a full and truthful statement of his illness.

6. A child born of a syphilitic father or mother should never be wet-nursed, as it may transmit syphilis to the nurse.

7. When a syphilitic subject is affected with any other illness, he should always inform his doctor of his former syphilis, for this information may be very useful in the direction of treatment and for the cure of the complaint.

II.—GONORRHŒA (*Clap*).

1. Gonorrhœa (Clap) in a man is a serious complaint, and should never be neglected. If not treated, it is liable to lead to stricture and other dangerous and troublesome results.

2. In a woman this disease is still more serious, and often results in sterility, chronic ill-health, or even loss of life. The infant of a mother suffering from gonorrhœa is not infrequently blinded by the disease.

3. It is extremely contagious and may remain so even after all apparent discharge and soreness have disappeared. A "gleet" is often very contagious. If any of the discharge gets into the eye, violent inflammation will be caused and the sight may be destroyed. This may occur from towels, sponges, clothing, &c. Both children and adults have frequently lost their sight from contagion conveyed in this manner.

4. A patient with gonorrhœa must therefore abstain from sexual intercourse and from marriage until he has been examined by a doctor and has been informed that he is free of infection. The slightest trace of discharge or soreness may be virulently contagious to others.

[*Information required from medical practitioners submitting sample of blood for Wassermann reaction.*]

QUEENSLAND.

Laboratory of Microbiology and Pathology, Brisbane.

WASSERMANN REACTION.

Serial No.

Name (or other identificatory symbol):
Age: Sex: Occupation:
History of present illness:
Lesions now present:
Past illness:
Family history:
Diagnosis:
Nature and Date of Primary Stage:
Nature and Date of Secondaries:
Nature and Date of Tertiaries:
Treatment. If "606," neo-salvarsan, &c., used, give Dates of Injections:
Results of Treatment:
Result of previous Wassermanns (if any):

Signature.

19 .

Price 3*s.* 6*d.*]

PLEASE NOTE.

1. *Use of form essential.*

It is imperative for scientific reasons that the details required by this form should be properly filled in for every case. Unless this is done, the Laboratory cannot undertake the examination.

2. *Charges and reductions in certified cases.*

The ordinary charge for the Wassermann reaction in private cases is £2 2s. Where, however, a medical practitioner certifies in writing that the patient is unable to pay the full charge, a reduction to any specified sum, or free examination, may be granted at the discretion of the Commissioner of Public Health.

3. *Dates for sending in specimens.*

The test will be performed each Friday only, and specimens must be lodged at the Laboratory, at College road, Brisbane, between 12 noon on Thursday and 10 a.m. on Friday.

4. *Method of taking specimens.*

The undermentioned method should be closely followed when taking specimens for the Wassermann reaction:—

(1) Use a syringe with a readily detachable needle.

(2) Sterilise syringe by boiling for half an hour in 2 per cent. sodium citrate solution.

(3) Unless the 5 c.c. phial is obtained from the Laboratory, sterilise it by boiling for half an hour.

(4) Prepare patient's arm over median basilic vein by washing well: (1) with hot water and soap; (2) with 5 per cent. carbolic solution, or similar non-mercurial disinfectant; (3) with absolute alcohol, or rectified spirit, allowing it to dry off; (4) with sulphuric ether, allowing it to dry off.

(5) Having, by digital pressure, or a tourniquet above the vein, caused it to fill, plunge the needle in centripetally, withdraw plunger, and fill syringe. If syringe capacity is 5 c.c. or over, withdraw needle from vein and empty into bottle. If less than 5 c.c., detach syringe from needle, empty contents into bottle, refix to needle, and repeat till bottle is full.

In cases where it is not considered advisable to withdraw the full 5 c.c. of blood, the amount may be reduced to not less than 1½ c.c. The test cannot be satisfactorily made with less than this latter amount.

(6) Securely cork or otherwise seal the bottle.

(7) Pack and address to Director, Laboratory of Microbiology, College road, Brisbane.

[*Notes required for issue of salvarsan or neo-salvarsan to hospitals.*]

DEPARTMENT OF PUBLIC HEALTH, QUEENSLAND.

Notes and history of case treated with issued by the Department of Public Health, Queensland, to Hospital at

Drug:
Amount:
Issue by:
Date:
Checked by:

Name:
Age: Sex: Marital condition:
Occupation:
Family history:
History of present illness:
Diagnosis:
Stage of disease when first received at hospital:
Description of principal lesions present on admission:
Date of first injection:
Method of injection (intravenous, intramuscular, &c.):
Description of lesions after first injection, viz.:—
(*a*) One week:
(*b*) Two weeks:
(*c*) Three weeks:
Date of any subsequent injection:
Reasons for any subsequent injection:
Results noted after any subsequent injection:
Present condition of patient:

Hospital Medical Officer.

Date:

Free issue is conditional upon receipt of the above particulars by the Commissioner of Public Health.

By Authority: ANTHONY JAMES CUMMING, Government Printer, Brisbane.